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HARD RED SPRING WHEAT



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QUALITY REPORT

Physical, Chemical, Milling, and Baking Characteristics

1966 CROP

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Crops Research Division

Preliminary Report Not For Publication^{1/}

REPORT OF PHYSICAL, CHEMICAL, MILLING, AND BAKING EXPERIMENTS

WITH HARD RED SPRING WHEAT

1966 CROP^{2/}

by

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^{1/} This is a progress report of cooperative investigations containing data, the interpretation of which may be modified with additional experimentation. Therefore, publication, display, or distribution of any data or any statements herein should not be made without prior written approval of the Crops Research Division, Agricultural Research Service, United States Department of Agriculture and the cooperating agency or agencies concerned.

^{2/} Investigations of the Crops Research Division, Agricultural Research Service, in cooperation with the North Dakota Agricultural Experiment Station. The samples were obtained from the cooperative experiments with the State Agricultural Experiment Stations in the spring wheat region.

Hard Red Spring and Durum Wheat Quality Laboratory
Fargo, North Dakota
CR-10-67



COOPERATING AGENCIES, STATIONS, AND PERSONNEL

The cooperating agencies and stations conducting the varietal plot and nursery experiments from which the 1966 spring wheat samples were received are listed below:

Colorado Agricultural Experiment Station:

Center, Fort Collins, and Hesperus.

Minnesota Agricultural Experiment Station:

Crookston, Morris, St. Paul, and Waseca.

Montana Agricultural Experiment Station:

Bozeman, Dutton, Havre, and Sidney.

North Dakota Agricultural Experiment Station:

Carrington, Fargo, Minot, and Williston.

South Dakota Agricultural Experiment Station:

Highmore and Watertown.

Wisconsin Agricultural Experiment Station:

Madison.

Wyoming Agricultural Experiment Station:

Laramie and Sheridan.

A complete list of all cooperating agencies, stations, and personnel for the year will be found in the report by Dr. K. L. Lebsock, "Results on Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1966."

INTRODUCTION

Samples of standard varieties and many of the new strains of hard red spring wheat grown in cooperative experiments in the spring wheat region of the United States^{3/} have been milled each year by the USDA. The flours were assayed chemically and physically and baked into bread to determine the quality characteristics. The purpose of this report is to make available to the cooperators, quality data on the standard varieties and new strains of hard red spring wheat from the 1966 crop.

The same general format and techniques were used in evaluating the wheats as were given in the quality reports of the past 4 years. The data contained in this report are comparable to data in past reports, and where applicable, average results and also the average results of the 1965 crop are compared.

The format adopted in 1962 shows an evaluation of the samples in three categories: kernel characteristics, milling performance, and baking evaluation: only the deficiencies which may be apparent for the varieties or outstanding characteristics, are given for sake of brevity. An additional column, General Evaluation, on the tables indicating the Uniform Regional Nursery Averages and Sawfly Yield Nursery Averages, gives the over-all performance of the variety for the samples submitted. It is hoped that with the use of this format one can quickly ascertain the various characteristics of the sample and any outstanding features or deficiencies which are apparent. Again, for physical characteristics, the mixogram data are given with no specific comments made regarding the patterns, since reference mixograms for each of the general types are presented at the end of the report.

The crop was harvested under somewhat adverse conditions, such as high moisture, especially in the southern two-thirds of the Red River Valley. Severe hail damage destroyed the plantings at Casselton, Dickinson, and Langdon, North Dakota; therefore, no samples were submitted from these locations. The average test weight, 1000 kernel weight, and potential yield was lower for the 1966 crop, compared to the 1965 crop. The average milling results were poorer for the 1966 crop. The baking performance of the 1966 crop was better, probably reflecting the higher protein content which averaged over 1% higher than the 1965 crop.

The oxidation requirements for the 1966 crop were generally the same to slightly less than the 1965 crop, requiring approximately 5 p.p.m. bromate; however, some samples did show the need for more oxidation. The requirement was erratic with Bozeman, Montana and Highmore, South Dakota indicating the highest requirement.

^{3/} Lebsock, K. L., "Results on Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1966." USDA, Agricultural Research Service, Crops Research Division.

In previous reports, Preliminary and Yield Nursery samples, as well as Special samples were included in the report. Since this information is of primary interest only to those persons submitting the samples, they have been omitted from the report this year as in last year's report. Only those samples (Advanced Yield Nursery, Field Plot, Uniform Regional Nursery, and Sawfly Yield Nursery) which are of regional interest are included.

SOURCE OF THE SAMPLES

Tests were performed on 483 samples received from advanced yield nursery, field plots, uniform regional nursery, and sawfly nursery of the 1966 crop. These samples originated in 7 states: Colorado, Minnesota, Montana, North Dakota, South Dakota, Wisconsin, and Wyoming. Twenty stations from these states were represented, namely, Center, Fort Collins, and Hesperus in Colorado; Crookston, Morris, St. Paul, and Waseca in Minnesota; Bozeman, Dutton, Havre, and Sidney in Montana; Carrington, Fargo, Minot, and Williston in North Dakota; Highmore and Watertown in South Dakota; Madison in Wisconsin, and Laramie and Sheridan in Wyoming.

Due to apparent differences in the characteristics of the wheats and protein contents, no samples were blended this year.

On page 6 are listed the spring wheats which were included in the uniform regional nursery 1966 trials. The variety or cross, the station which developed the variety, the state selection number, and the C.I. number are given.

In Table 23 are given the average data for the Uniform Regional Nursery samples. The data for kernel characteristics, milling performance, and mixograms are arithmetical averages of the individual samples. However, the baking performances were obtained from blends of equal proportions of the individual flours from the 16 series of stations.

In Table 29 are given the average data for the Sawfly Yield Nursery samples obtained from the arithmetical averages of the individual samples.

ENTRIES FOR THE 1966 UNIFORM REGIONAL HARD RED SPRING WHEAT NURSERY

Entry No.	Cross or Variety	Sel. No.	C.I. No.	New or Old	Developing Station
1	Marquis		3641	Old	Canada
2	Thatcher		10003	"	Minnesota
3	Selkirk		13100	"	Canada
4	Justin		13462	"	N. Dak.
5	Chris		13751	"	Minnesota
6	Manitou		13775	"	Canada
7	Kenya 338 x Lee	B61-89	13946	"	Montana
8	M2854 ² x II-50-72	II-55-11	13773	"	Minnesota
9	M2854 ² x II-50-72	II-55-16	-	New	"
10	Tc x Ftn-Hry	II-56-40	-	"	"
11	Crim x II-53-521	II-59-91	-	"	"
12	Unknown	SD625	13948	Old	S. Dak.
13	Unknown	SD626	13949	"	"
14	(II-50-17 x 51-2688)ND4-Rsc	61-107	13937	"	N. Dak.
15	ND4-Rsc(II-50-17 x 51-3349)	62-85	-	New	"
16	[Penjamo 62x(Hry ⁷ xP54)x(K184xWis250 ⁷)]x (K184xWis250 ⁴)	Wis.261	-	"	Wisconsin
17	"	Wis.262	-	"	"
18	Justin x ND81	ND363	13828	Old	N. Dak.
19	MEET x Cly ² - ND81	ND407	13953	"	"
20	Justin x ND152	ND456	13956	"	"
21	Justin x ND228	ND457	13957	"	"
22	ND152 x Justin	ND477	-	New	"

METHODS

Briefly, the following methods and terminologies were applied:

Test Weight Per Bushel - The weight per Winchester bushel of cleaned, dry, scoured wheat. To determine the dockage-free test weight on a comparable sample, approximately one pound per bushel should be subtracted from the value given.

1000 Kernel Weight - The 1000 kernel weight was determined by counting the number of kernels in a 10 gram sample of cleaned, picked wheat with an ASCO seed counter^{4/}.

Kernel Size - The percentages of the size of the kernels (large, medium, and small) were determined on a wheat sizer as described by Shuey^{5/}.

The sieves of the sizer were clothed as follows:

Top Sieve	-	Tyler # 7 with 2.92 mm. opening.
Middle Sieve	-	Tyler # 9 with 2.24 mm. opening.
Bottom Sieve	-	Tyler #12 with 1.65 mm. opening.

Potential Yield - The potential yield was determined by multiplying the percentages of the overs of each sieve #7, #9, and #12, by the value of 78%, 73%, and 68%, respectively. The accumulation percentage is given as the potential yield.

Milling - The samples were cleaned by passing the wheat over an Emerson Kicker and Dockage Tester and through a modified Forster Scourer Model 6. The clean dry samples were pre-tempered to 12% moisture for at least 72 hours; then tempered to 16% moisture and allowed to stand overnight prior to milling.

All samples except the advanced yield nursery and field plot samples were milled on a Brabender Quadrumat Junior Mill. The mill was equipped with a #18 wire on the drum sieve. The throughs of the #18 wire were rebolted on a Strand sifter equipped with a #60 Tyler sieve. The sample was sifted for 1 minute. The throughs of the #60 wire were classified as flour and this was the material tested. The overs of the #18 wire were classified as bran and the throughs of the #18 wire and overs of the #60 Tyler sieve as crude shorts.

The field plot samples were milled on a Buhler Continuous Experimental Mill. This mill has been slightly modified to give results more comparable to

^{4/} Mention of a trade product, equipment or a commercial company in this publication does not imply its endorsement by the United States Department of Agriculture over similar products or companies not named.

^{5/} Shuey, William C. A wheat sizing technique for predicting flour milling yield. Cereal Science Today 5: 71-72,75. 1960.

commercial milling. The break scalping sieves were clothed with #54 stainless steel wire, the reduction scalping sieves with #58, #66, and #105 stainless steel wires for the first, second, and third reduction, respectively. All of the flour sieves were clothed with #135 stainless steel wire.

All 6 flour streams were combined to give the patent flour. The extraction of a good milling wheat using this flow is approximately 68%. This is comparable to a commercial "long patent" extraction flour. At this flour extraction of the wheat, the changes in flour ash are most sensitive to changes in percent extraction.

Protein Content - The protein was calculated by multiplying the factor of 5.7 times the percent nitrogen as determined by the standard Kjeldahl procedure.

Mineral Content or Ash Content - This was determined by measuring the residue of the minerals left after incinerating the sample for approximately 16 hours at 565° C. The results were reported as percentage of the sample which was incinerated.

Mixogram - The mixogram was determined by using 30 g. of flour and adding 20 cc. of water. The sensitivity spring setting was set at 10. All mixograms were run with constant weight of flour and volume of water. Absorptions reported were adjusted according to the height of the mixogram. The correction factor was determined from a series of flours by varying the amount of absorption.

Mixogram Pattern - The reference mixogram patterns given at the end of the report demonstrate the different types of mixograms which were obtained. A single number is assigned each pattern to characterize and simplify the classification of the curves, the larger number indicating stronger curve characteristics.

Baking Procedure or Formula - The baking formula used was as follows:

100% flour	3% milk D.S.M.
2% salt	3% yeast
5% sugar	2% shortening (Crisco, melted)

The sample was mixed to development in a National Manufacturing mixer, for the 25 g. sample the Micro mixer, for the 100 g. sample the 100 g. special mixer size. Also, 5 ppm of bromate and 0.1% Barley Malt Flour was used for oxidation and enzymatic supplements, respectively.

Absorption - This was the water, expressed as percent of the flour, required to bring the dough to proper consistency.

Crumb Color - This value was determined by comparing the loaf of the tested sample against a baking standard. This standard was selected as an average for the crop year for the spring wheat area.

Loaf Volume - This was volume of the baked loaf as determined by seed displacement.

All values (Protein, Ash, and Absorption) were reported on a 14% moisture basis.

DISCUSSION

The following discussion presents some of the basis for the techniques and criteria used in evaluating the samples. There are four major evaluation categories used: Kernel characteristics, to characterize the kernel; milling performance, to evaluate the general milling characteristics; mixogram patterns, to classify the flour as to type; and baking evaluation, to rate the flour as to over-all baking.

Each evaluation category can be important. A sample could be of a sufficiently poor quality for a given category to eliminate it from possible future testing. However, a sample submitted for the first time and found to be questionable should be tested again to establish if it has a satisfactory or unsatisfactory classification. A sample which is consistently rated as questionable should be discarded.

All samples, as in previous years, are compared to a milling and baking standard which represents a blend of the crop year blended to a known quality. However, the samples for the individual stations were evaluated against the average results of the varieties Chris, Justin, and Selkirk from the respective stations. The agronomic and climatic conditions of the individual locations can effect the quality of the wheat sample, such that, the evaluation at certain locations could have all samples--even the named varieties--classified as questionable to unsatisfactory. Therefore, the evaluation ratings of one station are not directly comparable to those of another station. For example, an area may produce low protein wheats which give large and plump kernels, good milling and kernel characteristics, but low protein, and unsatisfactory baking properties such as short mixing time, low loaf volume, and weak dough characteristics. The wheat from this area could not be considered as a strong spring wheat, and would not maintain the quality expected from the spring wheat producing area. A good variety should have tolerance to a wide range of environmental conditions and the over-all picture taken into consideration for establishing these varieties.

A sample rated as satisfactory to questionable has only a very minor fault; however, if it is questionable to satisfactory, the fault is more serious, but in either case the fault is not sufficient to be considered as detrimental. For questionable to unsatisfactory, and unsatisfactory to questionable, the faults are much more serious and the sample would have little future promise of being accepted if such faults are consistent.

When more than one of the factors are below the standard, the variety is marked as questionable or unsatisfactory. If sufficient data accumulated over a two- or three-year period show a definite deficiency, the variety should be discarded. If a major fault is found, the variety is undesirable and should be discarded.

Kernel Characteristics are important in determining the initial value of the wheat and, if extremely poor, could disqualify a new variety from further consideration. Because of the present grading system, it is

desirable to have a good test weight. If a sample has a low 1000 kernel weight and small kernel size distribution, it would be considered a poor sample for milling because of the high ratio of bran to endosperm. Therefore, it is desirable to have plump kernels. Wheat ash is an important factor when comparing a variety against other standard varieties. If a sample would have consistently higher wheat mineral content, it would enhance the probability of having high flour ash. Low protein would not be desirable when comparing with standard varieties, because in a low protein crop year the probability of it having such a low protein as to be undesirable is very probable. Therefore, the protein must also be considered as a characteristic when comparing other varieties grown in the same locality.

Milling Performance is very important, especially the sub-category of milling characteristics. If low extractions or high flour ash are obtained, this becomes a major factor and is quite unacceptable from a commercial milling standpoint. All flour mineral contents are reported at a constant extraction of 65% so that the figures are directly comparable. As a rule of thumb, one can approximate that each point of ash (0.01%) is equivalent to approximately 2% in extraction.

Milling characteristics are important. A sample which tends to be soft in character requires a different milling technique to be milled properly. On commercial mills flowed for hard vitreous spring wheats, soft milling characteristics cause great difficulty. Therefore, if a sample shows softness in character, it is considered to be unsatisfactory. Likewise, a sample which is extremely hard and vitreous will cause difficulty. Both types of wheat (soft or vitreous) require different roll pressures, clothing, sifter surface, and temper to be milled properly. If these wheats are blended with normal milling wheats, improper results are obtained, since these characteristics are not necessarily compatible or additive. Normal to soft score indicates that the sample shows a tendency toward softness of character on the flour mill stocks and extraction. This would indicate that the sample may give some difficulty for certain mill streams and an adjustment would either have to be made in the milling flow, or in tempering procedures to compensate for these differences. The properties of this wheat may or may not be compatible with other wheats with which it may be blended, therefore, it is important to maintain varieties with as uniform milling characteristics as possible.

The amount of protein recovered in the flour for a sample is of importance. The high protein wheats yielding low protein flours are not desirable. Such a wheat would have much of the protein distributed in the outer portion of the kernel which would result in excessive protein in the feed. Therefore, higher protein in the wheat would be necessary to yield a flour of comparable protein to a wheat which gives good flour protein recovery.

Mixogram Patterns and Farinogram Patterns are important in estimating the strength and mixing tolerance or potential mixing tolerance of a flour. A long flat curve is more desirable than a short peaked curve; however, an extremely

long curve may be undesirable, since the flour would require excessive mixing to develop. The pattern of the curve is of importance as well as the length, and both must be considered.

Baking Evaluation takes into account the flour absorption, mixing time, dough characteristics, loaf volume and machinability. A sample which has low absorption would be unsatisfactory, compared to other spring wheats with normal absorption. A sample with extremely short mixing time would also be considered undesirable as a good strong spring wheat. When a sample is in the minimal range for these values, it is considered as questionable until further testing demonstrates whether a definite deficiency exists.

Doughs having mellow to weak dough properties show a tendency towards weakness. Also, for mellow to strong, the dough is mellow, but has a tendency to be strong, and a strong to mellow dough is just the reverse. Since these characteristics are subjective rather than objective, it is necessary at times to estimate the tendency; therefore, the necessity exists for apparent double grades.

The grain or appearance of the interior of the loaf shows how well the sample stood up during baking and may point out or explain some deficiencies which have been observed during the baking test.

Loaf volume indicates potential strength of the flour in a different manner than mixing time or dough characteristics, in that it shows the ability or lack thereof for the dough to expand under pressure and to contain the entrapped gases during this expansion. Weak flours act much like rotten balloons which burst when blown up and collapse, thus yielding low loaf volume or extremely large volume and large holes in the interior of the loaf. Low protein flours and lifeless (dead) doughs exhibit the properties similar to putty and do not expand during fermentation or baking and give low loaf volume. Tough and very bucky doughs are bound too tight and impede expansion of the gases causing low loaf volume.

General Evaluation rating is given for varieties which have been tested at least for two crop years. This evaluation takes into account the various grading factors and the results of the crop years as an over-all rating. The main defects and outstanding features are discussed. A variety which shows some promise with outstanding agronomic characteristics should be seriously considered and looked at in large plots, if it has not been previously, providing other sufficient information has been obtained. A sample which shows little promise should be discontinued.

ADVANCED YIELD NURSERY SAMPLES - 1966 CROP

Thirty-five advanced yield nursery samples were received from three stations in Colorado. The data for the individual samples are given in Tables 1 through 3.

CENTER, COLORADO SAMPLES

Ten samples were received from Center, Colorado. These samples were the five commercially, named varieties Crim, Lee, Manitou, Saunders, and Thatcher, grown at two different levels of nitrogen application per acre, namely, 40# nitrogen per acre and 80# nitrogen per acre. The results for each series with different applications of nitrogen are given in Table 1. The average results show a slight decrease in the 1000 kernel weight and percentage of small kernels; the same flour ash at 65% extraction and crumb color, and an increase in all the other values for the 80# application samples compared to the 40# application samples. Although there was only a .4% increase in wheat protein for the 80# application samples, there was a .7% increase in the flour protein compared with the 40# application samples, which would be a significant and worthwhile amount. On an average, the results from these samples indicate a definite response and improvement of the quality of the wheats with the additional nitrogen application.

FORT COLLINS AND HESPERUS, COLORADO SAMPLES

Twenty-five samples were received from two Colorado stations: Fort Collins and Hesperus. Fifteen of these samples were commercial, named varieties: Canthatch, Chris, Crim, Lee, Lemhi 53, Manitou, Marquis, Saunders, Selkirk, and Thatcher. Five of these samples were unnamed selections: B61-88, B61-95, ND 60-54, ND 229-1, and Wisc. 255. The results for each of these varieties for the individual stations are given in Tables 2 and 3. This same series of samples was reported last year as Field Plot Nursery samples from Fort Collins and Southwest Colorado. All of the Fort Collins samples this year generally exhibited stronger dough characteristics and higher absorptions than the Hesperus samples. A large majority of the samples from Hesperus had short mixing times.

The Fort Collins samples averaged higher protein content than the Hesperus samples and the over-all baking evaluation was better, probably due to the reflection of higher protein, giving better grain and loaf volume. The Fort Collins samples had better milling characteristics, although the kernel characteristics were slightly poorer than the Hesperus samples.

B61-88 (C.I. 13772)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Unsatisfactory. Low extraction and a tendency to have soft milling characteristics downgraded the milling performance.

Baking Evaluation - Satisfactory to Questionable. The volume, grain, and absorption for the Hesperus sample would place the selection in the questionable to unsatisfactory category for this station.

General Evaluation - Questionable. Since this selection has been tested only once from the Hesperus area in the two years it has been submitted, it should be tested again.

B61-95 (C.I. 13586)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Minimal absorption and mixing time would place this variety in the questionable category.

General Evaluation - Questionable. This sample has been tested at both locations for two years and has consistently shown minimum absorption and somewhat erratic results regards milling characteristics.

ND 60-54 (C.I. 13596)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. The Hesperus sample had minimal absorption and mixing time.

General Evaluation - Questionable to Unsatisfactory. Comparing this selection with the other selections submitted it has consistently showed low absorption, loaf volume, and mixing time and for an average would have to be ranked the poorest of the series.

ND 229-1 (C.I. 13589)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

ND 229-1 (C.I. 13589) Cont'd.

Baking Evaluation - Satisfactory to Unsatisfactory. Low loaf volume is the major fault with this sample and the Hesperus sample had low absorption.

General Evaluation - Questionable. This sample was not grown in the Hesperus area in 1965, however, the results of the three samples show it to be erratic in its characteristics.

Wisc. 255 (C.I. 13588)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Unsatisfactory. High flour ash for the Hesperus sample gave it a rating of unsatisfactory, though other characteristics were satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. This selection, of the 5 which were submitted in the series from the two stations, was the only one which gave satisfactory baking performance at both stations. From these results, it would show definite promise for the area; however, it should probably be studied for one more year.

FIELD PLOT NURSERY SAMPLES - 1966 CROP

Thirty-two field plot nursery samples were received from two states and two stations. The data for the individual samples are given in Tables 4 and 5. In Table 6, are given the averages for the varieties by states for the following varieties: Chris, Crim, Justin, and Selkirk. The averages for these commercial varieties per location were used as standard for judging the other samples in the field plots. The 1965 and 1966 averages also are given for these varieties for each of the states for comparative purposes.

NORTH DAKOTA SAMPLES

Twenty-four samples were received from the Williston, North Dakota station. No samples were received from Dickinson this year due to adverse weather conditions. Seventeen of these samples were named varieties of Canthatch, Chinook, Chris, Crim, Fortuna, Forx, Justin, Lee, Manitou, Nordman, Pembina, Plainsman, Rescue, Selkirk, Sheridan, Thatcher, and Valley. Seven of the samples were the unnamed selections: Minn. II-55-11, ND 61-107, ND 62-85, ND 363-1, ND 407, ND 450, and Wisc. 255. The results for each variety and selection are given in Table 4. The average results of the 1966 data for North Dakota were used to judge the performance of the other samples submitted. These data are given in Table 6.

II-55-11 (C.I. 13773)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

ND 61-107 (C.I. 13937)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. The sample showed a tendency to exhibit soft milling characteristics.

Baking Evaluation - Satisfactory to Questionable. This sample showed minimum mixing time.

ND 62-85

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. The flour extraction for this sample was lower than desired.



ND 62-85 Cont'd.

Baking Evaluation - Questionable. All characteristics for this sample were acceptable, except the crumb grain which showed a deficiency.

ND 363-1 (C.I. 13828)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Sample showed minimum flour extraction.

Baking Evaluation - Satisfactory.

ND 407 (C.I. 13953)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. This sample gave minimum flour extraction and showed a tendency to be soft in milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable. This was the only selection from the field plot series that was studied last year. It was rated questionable because of the milling characteristics showing a soft characteristic and low flour extraction.

ND 450

Kernel Characteristics - Satisfactory.

Milling Performance - Very Satisfactory. This sample gave the highest flour extraction and lowest flour ash at 65% extraction of all the samples submitted.

Baking Evaluation - Satisfactory.

Wisc. 255 (C.I. 13588)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.



WISCONSIN SAMPLES

Eight samples were received from the Madison, Wisconsin station. Three of these samples were unnamed selections: Wisc. 255, H678-1-5, and H678-1-6. Five of the samples were the named varieties: Chris, Crim, Justin, Lathrop, and Selkirk. The results are given in Table 5. The average results of Chris, Crim, Justin, and Selkirk for the station were used to judge the performance of the samples. These results are given in Table 6, as the 1966 crop average.

Wisc. 255 (C.I. 13588)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. This selection, on occasion, has shown some minimum performance; however, the over-all performance of this selection would indicate that it shows promise as a new variety.

H678-1-5

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. The data from the 1964 crop showed this variety to have questionable baking characteristics, although the milling performance was very satisfactory and the kernel characteristics satisfactory. Because this year is an exceptional year of good characteristics, especially for baking performance, it would be desirable to look at this variety again before making any decision as to its quality characteristics. Present data indicate it to show some promise as a new variety.

H678-1-6

Kernel Characteristics - Satisfactory.

Milling Performance - Very Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. This selection showed questionable kernel characteristics in 1964, however, it did show very satisfactory milling performance this year, yielding the lowest flour ash at 65% extraction and one of the highest flour extractions. Data would indicate this selection to show promise as a new variety.



UNIFORM REGIONAL NURSERY SAMPLES - 1966 CROP

A total of 352 Uniform Regional Nursery samples were received. The samples represented 16 stations from 6 states. No blends were made of the samples for this crop year due to lack of compatibility and were milled as individual samples to eliminate any possible erroneous results. Thus, a total of 352 samples were milled and baked. Twenty-two samples were received from each of the stations. Sixteen selections were included for quality evaluation in the Uniform Regional Nursery samples. The remainder of the samples were the commercially, named varieties of Chris, Justin, Manitou, Marquis, Selkirk, and Thatcher.

Eighty-eight samples were received from the 4 Minnesota stations of Crookston, Morris, St. Paul, and Waseca. Data for these samples are given in Tables 7 through 10.

Sixty-six samples were received from 3 stations in Montana: Bozeman, Havre, and Sidney. Data for these samples are given in Tables 11 through 13.

Eighty-eight samples were received from 4 stations in North Dakota: Carrington, Fargo, Minot, and Williston. The data are given in Tables 14 through 17 for these samples.

Forty-four samples were received from 2 stations in South Dakota: Highmore and Watertown. The data are given for these samples in Tables 18 and 19.

Twenty-two samples were received from the Madison, Wisconsin station. The data are given in Table 20.

Forty-four samples were received from 2 Wyoming stations: Laramie and Sheridan. The data are given for these samples in Tables 21 and 22. Some of the Laramie, Wyoming samples contained ergot. The very deleterious effect upon the flour color will be noted from the data in Table 21 for these samples.

In Table 23, are given the average results for each of the 22 samples submitted from the 6 states and 16 stations. The results for the kernel characteristics, milling performance, and mixogram patterns were obtained by averaging the results from the 16 tables--7 through 22. However, the baking results were obtained from a blend of the flours in equal proportions from each of the stations for the respective variety or selection. The regular 100 gram straight dough rich formula baking procedure was used in baking the flour blends. Again, as last year, the column entitled, "General Evaluation," was added which takes into consideration the general over-all performance of the samples. This will afford a ready reference.



For simplicity and brevity of the report, as in previous reports, each variety will be discussed from the general over-all average of the results given in Table 23, rather than the individual stations. The general evaluation summarizes the results from the individual stations or from two or more crop years, as well as the tolerance test. The evaluation is more meaningful for the over-all performance of the variety when at least two or more crop years are included.

In Table 24, the averages are given by state for the 3 main varieties of Chris, Justin, and Selkirk. This table gives a comparison of the varieties by state, as well as state averages of the 3 varieties for comparative purposes, and the 1966 grand average. The 1965 grand averages for the same 3 varieties are also given for comparison of the two crop years. In general, the 1965 crop had better kernel characteristics, approximately 1% less protein, and somewhat better milling results with approximately equal extractions, but 3 points lower mineral content compared to the 1966 crop. However, the mixing time was slightly longer, the mixogram pattern stronger, the crumb grain better, and the loaf volume greater than the 1965 crop. The better baking traits may be a reflection of the higher protein content of the 1966 crop.

The average results of the varieties Chris, Justin, and Selkirk for each of the individual stations were used as a standard for the other selections from that station. Therefore, a variety or a selection may be rated Satisfactory at two different stations, however, comparison of the data may show much poorer results for one station due to adverse agronomic conditions. Thus, in actuality, the sample with poorer results could be rated as Unsatisfactory quality wise when compared to the over-all spring wheat area. For example, in comparing the kernel characteristics data in Tables 10 and 18 for Waseca, Minnesota and Highmore, South Dakota, respectively, the South Dakota samples would generally be rated as Unsatisfactory. The state averages in Table 24, are additional guides for the relative performance for the crop year by states.

The average results for the new varieties or selections were:

II-55-11 (C.I. 13773)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. This selection has a tendency to give minimum absorption.

General Evaluation - Satisfactory. Based on 4 crop years, this variety has a tendency to give erratic minimal results from different areas, both for milling and baking; however, this selection does show promise as a new variety.



II-55-16

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. Based on this crop year, this selection would show some promise as a new variety; however, the average baking results of this crop year are good.

II-56-40

Kernel Characteristics - Satisfactory.

Milling Performance - Very Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Based on this crop year's results, this selection would show some promise as a new variety; however, it does have a tendency to show minimum baking absorption.

II-59-91

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Selection showed a tendency to give minimum extraction and high ash.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Based on this crop year, this selection would show little promise as a new variety due to the milling characteristics.

B61-89 (C.I. 13946)

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory. Selection gave low extraction, high ash, and soft milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable to Unsatisfactory. Based on two crop years, this selection would show no promise as a new variety because of the poor milling characteristics.

61-107 (C.I. 13937)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. This selection has a tendency to give minimum extraction and maximum ash.

Baking Evaluation - Unsatisfactory. Short mixing time, low absorption, and weak dough characteristics.

General Evaluation - Unsatisfactory to Questionable. Based on the two crop years, this selection would show no promise as a new variety primarily due to the weak dough characteristics.

62-85

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Tendency to show low extraction and high ash.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Based on this crop year, this selection would show some promise as a new variety.

ND 363 (C.I. 13828)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. Some samples gave high ash.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. This selection, based on the results of 3 crop years, would be considered to show some promise, although it has given minimum milling performance and somewhat erratic baking results.

ND 407 (C.I. 13953)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Unsatisfactory. Flour extraction low and a tendency to show soft milling characteristics.

Baking Evaluation - Satisfactory.

ND 407 (C.I. 13953) Cont'd.

General Evaluation - Unsatisfactory to Questionable. Based on two crop years, this selection would show no promise primarily due to the poor milling characteristics which are soft and low extraction, although the baking evaluation has been satisfactory.

ND 456 (C.I. 13956)

Kernel Characteristics - Satisfactory.

Milling Performance - Very Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable. Based on two crop years, this selection would show little promise. Last year it was rated as Questionable to Unsatisfactory due to weak doughs. While this year it showed minimum performance in baking, although the crop average was stronger this year.

ND 457 (C.I. 13957)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Some samples showed minimum absorption and mixing. This selection also gave low loaf volume.

General Evaluation - Satisfactory to Questionable. Based on two crop years, this selection would show some promise as a new variety. Last year this selection was rated as satisfactory.

ND 477

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. This selection showed minimum dough characteristics, mixing time and somewhat erratic results.

General Evaluation - Satisfactory to Questionable. Due to the erratic results of this crop year, the selection would show little promise.

SD 625 (C.I. 13948)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Unsatisfactory. Low absorption, short mixing time, weak dough, and low loaf volume.

General Evaluation - Unsatisfactory. Based on two crop years, this selection would show no promise as a new variety, due primarily to its dough characteristics and baking performance.

SD 626 (C.I. 13949)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. Tendency for low extraction and high ash.

Baking Performance - Unsatisfactory. Very low absorption, short mixing time and tendency for weak doughs.

General Evaluation - Unsatisfactory. Based on two crop years, the baking characteristics and poor mixing tolerance rate this selection as having no promise.

Wisc. 261

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Primarily due to low absorption.

General Evaluation - Satisfactory to Questionable. Based on this crop year, this selection would show some promise, although it does have minimum absorption.

Wisc. 262

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. Based on this crop year, this selection would show some promise as a new variety.

SAWFLY YIELD NURSERY SAMPLES - 1966 CROP

Sixty-four samples were received from 3 stations in Montana and 1 station in North Dakota. Sixteen samples were received from the stations in Dutton, Havre, and Sidney, Montana and Williston, North Dakota. Six of the samples from each station were the following named varieties: Chinook, Cypress, Fortuna, Rescue, Sawtana, and Thatcher. Ten of the samples from each station were the following selections: B61-23, ND 61-107, ND 62-85, ND 63-81, ND 63-114, Q631-4, Q631-11, Q631-16, 7530-436, and 7532-2. The data for these samples for the individual stations are given in Tables 25 through 28. In Table 29, are given the average results of the four stations for each of the varieties with an additional "General Evaluation" column. This year, for each station, the varieties of Chinook, Rescue, and Thatcher were averaged for a standard performance and the results of the individual samples were compared to this average.

B61-23 (C.I. 13832)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. The average extraction for this selection was one of the lowest for the entire Sawfly Yield Nursery series. Two samples showed a tendency to have soft milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Based on 3 crop years, this selection has been rated satisfactory to questionable. It would be desirable to obtain a larger quantity of this selection to check the milling performance on a larger mill, as it does show some promise as a new variety.

ND 61-107 (C.I. 13937)

Kernel Characteristics - Very Satisfactory.

Milling Performance - Satisfactory to Questionable. The Havre, Montana, sample gave high ash, rating it as unsatisfactory to questionable, therefore, the over-all milling performance rating of satisfactory to questionable.

Baking Performance - Questionable. Short mixing time.

General Evaluation - Questionable. Based on 3 crop years, the baking performance has been minimum. Due to the somewhat erratic results of the milling performance and the baking performance of this sample, this selection shows little promise.

ND 62-85

Kernel Characteristics - Satisfactory.

Milling Performance - Unsatisfactory to Satisfactory. The erratic milling of this sample covers the entire range in milling performance, showing high ash and low extraction.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Evaluation based primarily on erratic milling performance.

ND 63-81

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. Tendency to give low extraction and somewhat higher ash than desirable.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. The milling performance is minimum.

ND 63-114

Kernel Characteristics - Very Satisfactory.

Milling Performance - Questionable. The sample gave low extraction, high ash, and had a tendency to have soft milling characteristics.

Baking Evaluation - Unsatisfactory. Short mixing time and weak dough characteristics classify this selection as unsatisfactory.

General Evaluation - Unsatisfactory. Based on two crop years, this selection has consistently shown short mixing time. The short mixing time in conjunction with the poor milling performance for this year would rate this selection as showing little promise.

Q631-4

Kernel Characteristics - Very Satisfactory.

Milling Performance - Questionable. Somewhat erratic results of low extraction and high ash.

Baking Evaluation - Satisfactory.

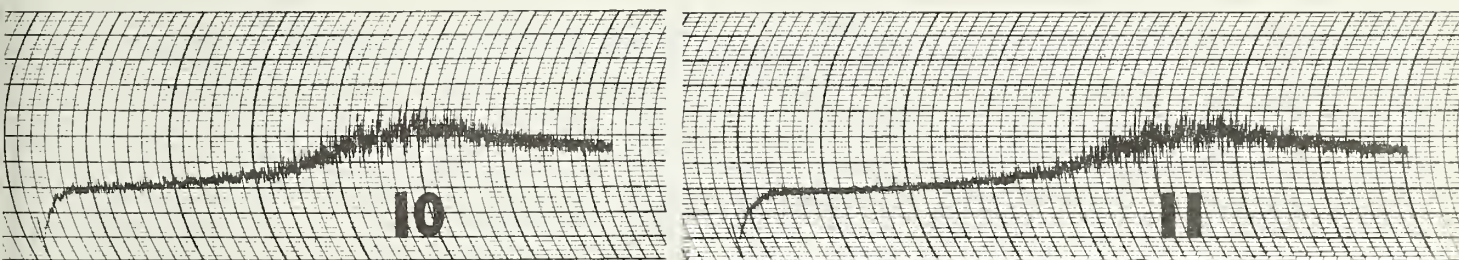
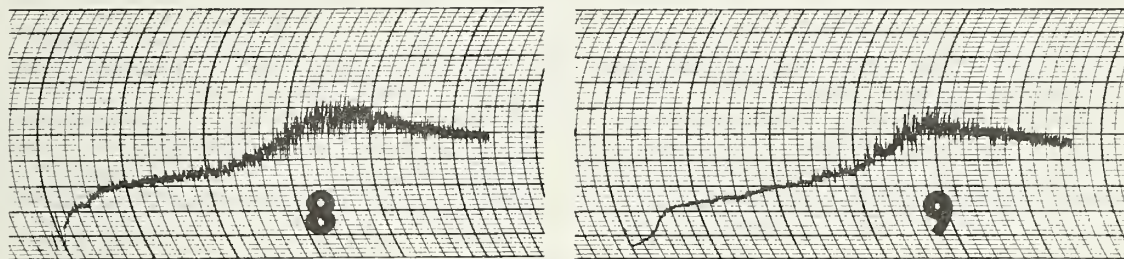
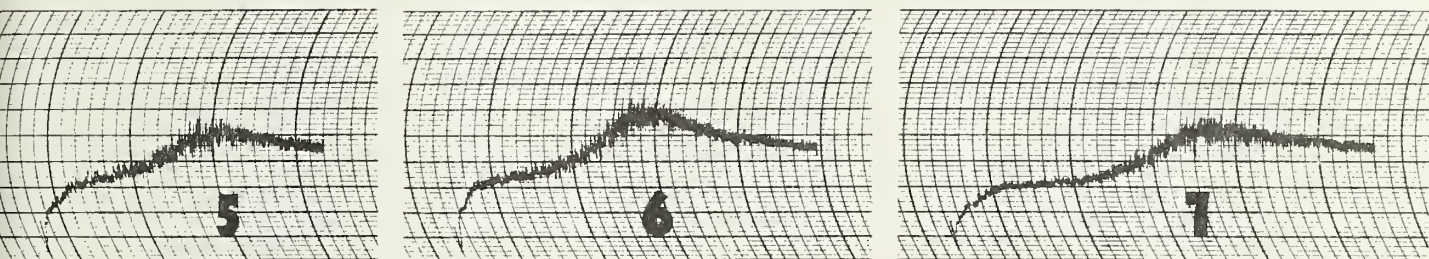
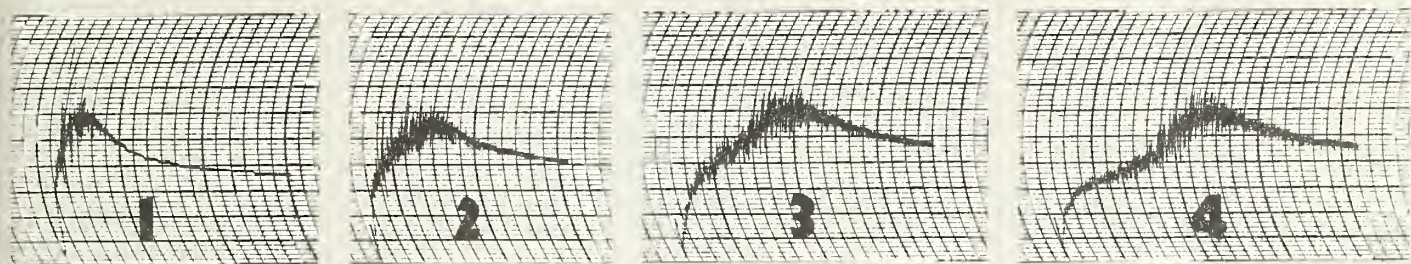
7532-2 Cont'd.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable to Satisfactory. The milling performance is somewhat erratic and therefore the selection was rated questionable to satisfactory. If the erratic milling characteristics do not continue, the selection would show some promise.

REFERENCE MIXOGRAMS

HARD RED SPRING WHEAT



U.S.D.A. SPRING WHEAT QUALITY LABORATORY

FARGO, NORTH DAKOTA

TABLE 1

QUALITY DATA ON ADVANCED YIELD NURSERY SAMPLES

Center, Colorado

1966 CRQP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min. 2/ %	Wht. Pro. 2/ %	Kern. Char. 3/ %	Flr. Ext.	Flr. 65%Ex. 2/ %	Min.@ Pro. 2/ %	Mlg. Char. 4/ %	Mlg. Per. 3/ %	Mix. Abs. 2/ %	Mix. Pat. 5/ %	Bake Abs. 2/ %	Mix. Time	Dough Char. 6/ %	Crumb Color	Crumb Grain 8/ %	Loaf Vol.	Bake Eval. 3/ %		
				Lg. Med.	Sm.																			cc.	
40# Nitrogen/Acre																									
Crim	13465	62.2	38.9	68	28	4	76.2	1.46	14.1	S	64.9	.36	12.5	N-S	S-Q	69.1	5	69.1	3-1/2	M	105	90 0	875	S	
Lee	12488	63.1	38.5	72	25	3	76.5	1.53	14.5	S	64.3	.38	13.0	N-S	S-Q	68.8	5	68.8	3-1/4	M	100	95 SII	875	S	
Manitou	13775	62.6	33.6	69	29	2	76.4	1.50	14.6	S	65.9	.35	13.4	N	VS	65.3	3	65.3	2-1/4	M	105	SIC	90 I	865	Q
Saunders	12567	61.4	37.6	64	30	6	76.0	1.49	14.1	S	64.6	.40	13.1	N-S	S-Q	66.3	4	66.3	3	M	100	95	895	S	
Thatcher	10003	62.8	36.1	67	30	3	76.2	1.50	14.0	S	64.8	.38	13.0	N-S	S-Q	64.2	3	64.2	2-1/4	M	95	95	900	Q	
80# Nitrogen/Acre																									
Crim	13465	62.6	37.9	75	23	2	76.7	1.53	14.3	S	65.7	.37	13.4	N	S	69.7	6	69.7	3-3/4	M-S	105 W	95	900	S	
Lee	12488	62.6	39.1	70	29	1	76.5	1.67	14.9	S	65.2	.38	13.6	N-S	S-Q	66.3	5	66.3	3-1/2	M	105	95 S10I	880	S	
Manitou	13775	62.7	33.6	73	26	1	76.6	1.55	15.2	S	67.5	.36	14.0	N	VS	65.7	4	65.7	2-1/4	M	100	SIC	95	890	Q
Saunders	12567	62.2	37.3	64	30	6	76.0	1.48	14.8	S	66.4	.39	13.9	N	S	66.6	4	66.6	2-3/4	M	95	95	900	S-Q	
Thatcher	10003	63.1	34.2	66	32	2	76.2	1.47	14.5	S	66.7	.37	13.5	N	S	68.5	5	68.5	3	M	100	SIC	95 SII	855	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 2

QUALITY DATA ON ADVANCED YIELD NURSERY SAMPLES

Fort Collins, Colorado

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min. @ 65% Ex.	Flr. Pro.	Mlg. Char.	Mlg. Pct.	Mix. Abs.	Mix. Pat.	Bake Abs.	Bake Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				g.	%	%		2/ %	2/ %	3/ %	%	2/ %	2/ %	4/ %	3/ %	2/ %	5/ %	2/ %	4/ min.	5/ %	1/ %	g/ %	cc.	
Canthatch	13345	60.1	30.6	46	50	4	75.1	1.59	14.8	S	66.4	.37	13.7	N	S	66.0	3	66.0	2-1/2	M	95	95	840	S-Q
Chris	13751	59.5	36.0	73	24	3	76.6	1.62	14.8	S	66.0	.39	13.7	N	S	69.7	6	69.7	4	M-S	110	90	885	S
Crim	13465	60.4	31.1	46	51	3	75.2	1.56	15.3	S	68.3	.35	14.3	N	VS	67.6	4	67.6	2-1/2	M	105	95	955	S-Q
Lee	12488	60.0	36.9	68	30	2	76.3	1.61	15.2	S	65.0	.39	13.7	N	S	65.7	4	65.7	3-1/4	S-M	105	95	935	S
Manitou	13775	59.4	30.0	49	49	2	75.4	1.63	14.9	S	65.3	.38	13.7	N	S	64.2	3	64.2	2-1/4	M	105	95	825	Q
Marquis	3641	61.4	32.9	53	44	3	75.5	1.59	15.2	S	65.5	.35	13.7	N	S	63.5	3	63.5	2-1/2	M	110	90	890	Q
Saunders	12567	59.8	31.9	54	40	6	75.4	1.53	15.2	S	65.6	.40	13.8	N	S	64.7	4	64.7	2-1/2	M	95	95	935	Q
Selkirk	13100	58.5	35.5	57	40	3	75.7	1.66	15.0	S	69.1	.37	13.9	N	S	64.2	3	64.2	2-1/4	M	95	95	950	Q
Thatcher	10003	59.4	32.5	48	49	3	75.3	1.64	15.0	S	65.2	.37	13.8	N	S	63.2	3	63.2	2-1/4	M	95	95	875	Q
B61-88	13772	62.2	34.6	63	35	2	76.1	1.59	13.9	S	64.9	.38	12.8	S-N	Q	64.2	5	64.2	4	M-S	105	95	905	S
B61-95	13586	62.4	34.8	52	46	2	75.5	1.54	14.6	S	64.0	.34	13.5	N	S	63.2	4	63.2	3-1/4	M-S	100	90	940	S
ND 60-54	13596	61.0	39.4	59	38	3	75.8	1.58	14.4	S	68.4	.38	13.4	N	S	65.3	4	65.3	3	M	105	90	880	S
ND 229-1	13589	60.7	36.1	73	24	3	76.5	1.58	13.8	S	64.7	.37	12.4	N	S	65.0	5	65.0	3-3/4	M	100	90	875	S
Wisc. 255	13588	60.4	35.1	52	46	2	75.5	1.68	15.5	S	66.4	.37	14.5	N	S	65.3	5	65.3	4-1/4	M-S	100	95	990	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 3

QUALITY DATA ON ADVANCED YIELD NURSERY SAMPLES

Hesperus, Colorado

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	g.	Kernel Lg.	Med.	Size Sm.	Pot. Yld.	Wht. Min. 2/ %	Wht. Pro. 2/ %	Kern. Char. 3/ %	Flr. Ext.	Min.@ 65%Ex. 2/ %	Flr. 2/ %	Mlg. Char. 4/ %	Mlg. Per. 3/ %	Mix. Abs. 2/ %	Mix. Pat. 5/ %	Bake Abs. 2/ %	Mix. Time	Dough Char. 6/ %	Crumb Color 7/ %	Crumb Grain 8/ %	Loaf Vol.	Bake Eval. 3/ %	
					%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	min.		cc.				
Canthatch	13345	61.0	32.5	68	30	2	76.3	1.67	13.0	S	63.7	.40	12.2	N-S	Q	64.2	3	64.2	2-1/4	M	100	SIC	100	825	Q	
	13751	61.2	33.8	66	32	2	76.2	1.68	12.6	S	65.0	.39	12.2	N	S	64.3	3	64.3	2-1/4	M-W	105	90	I	820	U-Q	
	13465	59.8	38.8	78	19	3	76.8	1.67	13.1	S	64.1	.38	12.0	N-S	Q	65.0	4	65.0	3-1/4	M	110	95	SII	825	S-Q	
	13258	59.6	37.3	74	23	3	76.6	1.58	10.5	S	63.9	.34	8.8	S	U	56.7	1	56.7	1-1/4	VW	100	W	90	S	695	U
	13775	60.8	33.0	68	30	2	76.3	1.67	13.5	S	64.5	.42	12.6	N	Q-S	63.5	3	63.5	2-1/4	M	110	95	SII	835	Q	
Marquis	3641	61.4	36.6	66	30	4	76.1	1.74	13.5	S	64.7	.44	12.1	N	U	64.2	3	64.2	2-1/4	M	110	W	95	875	Q	
	13772	62.2	36.8	73	24	3	76.5	1.74	12.6	S	63.9	.43	11.4	N-S	U	63.5	3	63.5	2-3/4	M	110	90	IO	800	Q-U	
	B61-88	61.7	37.0	74	20	3	76.9	1.70	12.5	S	64.6	.39	11.4	N	S	62.5	3	62.5	2-1/2	M	105	95	SII	825	Q	
	B61-95	62.9	38.5	78	22	0	76.9	1.70	12.5	S	64.6	.39	11.4	N	S	62.5	3	62.5	2-1/2	M	105	95	SII	825	Q	
	ND 60-54	13596	61.5	45.2	75	21	4	76.6	1.68	12.3	S	68.2	.40	11.0	N	S	62.3	2	62.3	2-1/4	M	95	SIC	95	SII	800
ND 229-1	13589	61.6	39.5	76	21	3	76.7	1.67	11.7	S	66.1	.39	10.4	N	S	62.3	3	62.3	3-1/4	M	100	W	90	SIO	755	U
	Wisc. 255	13588	60.7	39.5	72	26	2	76.5	1.78	13.6	S	65.3	.44	12.6	N	Q	64.2	3	64.2	3-1/4	M-S	105	90	IO	875	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soapy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 4

QUALITY DATA ON FIELD PLOT NURSERY SAMPLES

Williston, North Dakota

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min. @ 65% Ex.	Flr. Pro. 2/	Mlg. Char. Per. 4/ 3/	Mix. Abs. Pat. 2/ 5/	Mix. Time min.	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol. 9/	Bake Eval. 3/					
				g.	%																%	%	%	%	%
Canthatch	13345	59.9	24.3	50	47	3	75.4	1.79	16.3	S	63.4	.40	15.6	N	S	64.4	4	64.4	3	M-S	95 S1C	90 0	1005	S	
	13320	60.1	29.1	8	90	2	73.3	1.67	16.8	S	64.8	.37	16.0	N	S	66.0	4	66.0	3	M	105 S1I	95 S1I	905	S	
	13751	59.1	23.4	2	89	9	72.7	1.78	17.4	S	65.5	.45	16.2	N	S-Q	67.0	4	67.0	3-1/4	M	110	90 I	1010	S	
	13465	58.9	28.5	20	76	4	73.8	1.78	16.5	S	63.8	.43	15.7	N	S-Q	70.3	6	70.3	4-1/2	M-S	110 W	95	1030	S	
	13596	59.2	34.2	28	70	2	74.3	1.75	17.4	S	66.1	.43	16.4	N	S	70.3	6	70.3	3-1/2	M	95	95	980	S	
Forx	14126	59.5	27.2	8	88	4	73.2	1.70	17.2	S	64.3	.39	16.3	N-S	S-Q	66.3	4	66.3	2-1/4	M-W	110	90 0	945	U	
	13462	58.4	24.1	5	90	5	73.0	1.83	17.3	S	64.8	.40	16.4	N	S	65.3	4	65.3	3	M	110	85 0	1050	S-Q	
	12448	60.0	29.6	15	83	2	73.7	1.75	17.3	S	61.7	.43	16.4	N	Q	66.3	4	66.3	2-3/4	M	95	95	990	Q	
	13775	57.0	22.7	2	88	10	72.6	1.75	17.0	S	64.5	.39	16.0	N	S	64.7	4	64.7	3	M	100 S1C	90	1010	S	
	14127	56.2	26.3	10	84	6	73.2	1.72	16.3	S-Q	67.4	.39	15.3	N	S	66.3	5	66.3	3-1/2	M	95	95 S10	930	S	
Pembina	13332	57.8	24.8	2	94	4	72.9	1.71	16.7	S	64.5	.39	15.7	N	S	65.3	7	65.3	5	M-S	105 S1C	90 I	945	S	
	14128	56.4	27.9	7	87	6	73.1	1.72	16.2	S	67.6	.37	15.4	N	S	65.3	5	65.3	4	M	100	90 0	960	S	
	12435	58.9	24.4	2	91	7	72.8	1.76	16.4	S	64.3	.38	15.1	N	S	64.7	4	64.7	3-3/4	M	105 S1C	95 S1I	1015	S	
	13100	56.5	27.0	4	91	5	73.0	1.85	16.5	S	66.4	.37	15.4	N	S	65.3	5	65.3	3-1/4	M	100	100	975	S	
	13586	59.5	27.0	6	85	9	72.9	1.79	16.3	S	62.9	.38	15.1	N-S	Q-U	64.2	5	64.2	3-3/4	M	110 BW	90 0	1100	S	
Thatcher	10003	59.2	24.5	4	92	4	73.0	1.75	16.8	S	63.1	.39	15.4	N	Q	63.2	4	63.2	2-3/4	M	110 S1C	80 IO	1005	Q	
	59.8	30.4	25	73	2	74.2	1.72	17.1	S	61.7	.40	15.6	N-S	U	65.3	4	65.3	3	M	100	90 0	975	S-Q		
	13773	60.0	32.2	18	76	6	73.6	1.65	16.3	S	65.1	.37	14.9	N	S	63.8	5	63.8	3-3/4	M	100	95 S10	1025	S	
	13937	59.0	34.0	28	68	4	74.2	1.58	17.1	S	63.3	.36	15.9	N-S	Q	64.4	5	64.4	2-3/4	M	100	90 I	960	S-Q	
	ND 61-107	61.1	28.1	15	82	3	73.7	1.86	17.1	S	63.4	.38	16.0	N	Q	65.3	5	65.3	3-3/4	M-S	110 BW	80 IO	1020	Q	
ND 363-1	13828	59.3	29.0	20	78	2	73.9	1.77	16.7	S	63.9	.37	15.6	N	Q	64.7	5	64.7	4	M-S	110	90 I	945	S	
	ND 407	60.0	32.6	20	77	3	73.9	1.64	17.3	S	62.9	.36	15.9	N-S	Q	66.6	5	66.6	3-1/2	M-S	100	90	1025	S	
	ND 450	59.1	31.9	11	86	3	73.4	1.79	17.1	S	68.6	.31	15.6	N	VS	70.7	6	70.2	4-3/4	M-S	100 S1C	90	880	S	
	Wisc. 255	13588	58.5	26.6	7	87	6	73.1	1.86	17.2	S	65.3	.40	15.8	N	S	70.3	7	69.8	4-3/4	S	100 C	95	1015	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 5

QUALITY DATA ON FIELD PLOT NURSERY SAMPLES

Madison, Wisconsin

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt. g.	Kernel Size		Pot. Yld. %	Wht. Min. 2/ %	Wht. Pro. 2/ %	Kern. Char. 3/ %	Flr. Ext. 2/ %	Min.@ 65%Ex. 2/ %	Flr. Pro. 2/ %	Mlg. Char. 4/ %	Mlg. Per. 3/ %	Mix. Abs. 2/ %	Mix. Pat. 5/ %	Bake Abs. 2/ %	Mix. Time min.	Dough Char. 6/ %	Crumb Color 7/ %	Crumb Grain 8/ g/	Loaf Vol. 910 cc.	Bake Eval. 3/ %	
				Lg.	Med. Sm.																			
Chris	13751	61.3	25.6	6	92	2	73.2	1.96	13.2	S	64.3	.46	12.7	N	S	61.6	5	61.6	4-1/4	M	100	95	925	S
	13465	59.7	28.0	37	60	3	74.7	1.99	12.4	S	65.4	.44	11.8	N	S	61.9	6	61.9	5	M	105 W	95 S10	875	S
	13462	60.4	29.7	30	68	2	74.4	2.06	14.0	S	67.7	.44	13.1	N	S	61.9	6	61.9	5-1/2	M	100 W	95 S11	880	S
	13457	60.7	32.6	37	60	3	74.7	1.96	11.7	S	69.3	.39	10.5	N	VS	58.7	4	58.7	3-1/2	M-W	100 S1C	95	855	Q
	13100	58.0	27.4	9	87	4	73.3	2.08	12.6	S	67.6	.44	11.7	N	S	58.7	3	58.7	3-1/2	M	105	95 S11	845	S-Q
Wisc. 255	13588	61.5	29.3	15	82	3	73.6	1.87	13.4	S	67.2	.43	12.1	N	S	60.3	6	60.3	5	M	105	95 S11	910	S
	H678-1-5	60.8	29.4	18	79	3	73.8	1.95	12.5	S	67.4	.39	11.6	N	S	59.7	5	59.7	4-1/2	M	105	90	910	S
	H678-1-6	60.1	30.7	29	68	3	74.3	1.96	12.5	S	67.7	.38	11.3	N	VS	59.7	5	59.7	4-1/2	M	100	95 S10	915	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 6

QUALITY DATA ON FIELD PLOT STATE AVERAGES

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht.		Wht. Pro.	Kern. Char.	Flr. Ext.	Flr. Min. @ 65% Ex.		Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.		Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				lg.	Med. Sm.		2/ %	2/ %				2/ %	2/ %				3/ %	3/ %							
NORTH DAKOTA																									
Chris	13751	59.1	23.4	2	89	9	72.7	1.78	17.4	S	65.5	.45	16.2	N	S-Q		67.0	4	67.0	3-1/4	M	110	90 I	1010	S
Crim	13465	58.9	28.5	20	76	4	73.8	1.78	16.5	S	63.8	.43	15.7	N	S-Q		70.3	6	70.3	4-1/2	M-S	110 W	95	1030	S
Justin	13462	58.4	24.1	5	90	5	73.0	1.83	17.7	S	64.8	.40	16.4	N	S		65.3	4	65.3	3	M	110	85 O	1050	S-Q
Selkirk	13100	56.5	27.0	4	91	5	73.0	1.85	16.5	S	66.4	.37	15.4	N	S		65.3	5	65.3	3-1/4	M	100	100	975	S
1966 Average ^{2/}		58.2	25.6	8	87	5	73.1	1.81	17.0		65.1	.41	15.9				67.0	5	67.0	3-1/2		108	93	1016	
1965 Average ^{2/}		61.1	28.5	23	76	1	74.1	1.79	14.6		66.5	.41	13.9				63.3	4	63.3	3-3/4		107	91	921	
WISCONSIN																									
Chris	13751	61.3	25.6	6	92	2	73.2	1.96	13.2	S	64.3	.46	12.7	N	S		61.6	5	61.6	4-1/4	M	100	95	925	S
Crim	13465	59.7	28.0	37	60	3	74.7	1.99	12.4	S	65.4	.44	11.8	N	S		61.9	6	61.9	5	M	105 W	95 S10	875	S
Justin	13462	60.4	29.7	30	68	2	74.4	2.06	14.0	S	67.7	.44	13.1	N	S		61.9	6	61.9	5-1/2	M	100 W	95 S11	880	S
Selkirk	13100	58.0	27.4	9	87	4	73.3	2.08	12.6	S	67.6	.44	11.7	N	S		58.7	3	58.7	3-1/2	M	105	95 S11	845	S-Q
1966 Average ^{2/}		59.9	27.7	20	77	3	73.9	2.02	13.1		66.3	.45	12.3				61.0	5	61.0	4-1/2		103	95	881	
1965 Average ^{2/}		62.4	35.5	69	30	1	76.5	1.77	14.1		66.9	.39	12.9				62.5	4	62.5	3-1/2		100	89	876	
CROP YEAR AVERAGE																									
Crop Average 1966 ^{2/}		59.1	26.7	14	82	4	73.5	1.91	15.1		65.7	.43	14.1				64.0	5	64.0	4		106	94	949	
Crop Average 1965 ^{2/}		61.8	32.0	46	53	1	75.3	1.78	14.4		66.7	.40	13.4				62.9	4	62.9	3-1/2		104	90	899	
1/ 2/ 3/ 4/ 5/ 6/ 7/ 8/ 9/																									
Clean dry - subtract 1#/Bu. for dockage-free T.W. 16% moisture basis. S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very. N - Normal, H - Hard, S - Soft. Refer to reference mixogram for numerical curve pattern. B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very. C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White. O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close. Averages are obtained using the results for the varieties of Chris, Crim, Justin and Selkirk.																									

CROP YEAR AVERAGE

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.
9/ Averages are obtained using the results for the varieties of Chris, Crim, Justin and Selkirk.

TABLE 7

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Crookston, Minnesota

1966 CROP

Variety or Sel. No.	C.I. No.	T.M. 1/ #/Bu.	1000 Kwt.	Kernel Size Lg. Med. Sm.	Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min.@ 65%Ex.	Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Leaf Vol.	Bake Eval.		
			g.	%	%	%	%	%	%	%	%	%	%	%	%	%	min.	6/ 2/	7/ 2/	8/ 2/	cc.	3/ 2/		
Chris	13751	62.0	28.2	34	64	2	74.6	1.79	13.5	S	60.0	.47	12.7	N	S	61.9	4	61.9	3-3/4	M	105	95	180	Q
Justin	13462	60.0	32.2	48	49	3	75.3	1.97	16.2	S	57.6	.48	15.4	N	S	66.3	4	M-S	100 SIC	90	0	201	S	
Manitou	13775	61.5	27.7	30	68	2	74.4	1.82	13.6	S	59.2	.51	12.9	N	S-Q	61.6	4	M	110	95	183	S		
Marquis	3641	59.5	25.3	8	88	4	73.2	2.05	12.3	Q	54.7	.59	11.5	N	U	60.0	4	M	105 C	95	95	164	U	
Selkirk	13100	59.5	30.6	34	64	2	74.6	1.95	13.3	S	58.8	.56	12.4	N	Q	61.9	4	M	95	95	165	Q		
Thatcher	10003	61.0	25.6	4	93	3	73.1	1.85	12.8	Q	59.0	.55	11.9	N	Q-U	62.8	5	M	105 C	100	100	170	S	
II-55-11	13773	63.5	37.6	64	35	1	76.2	1.83	13.8	VS	58.3	.47	13.0	N	S	62.8	5	M	105	95	192	S		
II-55-16	63.0	38.8	71	28	1	76.5	1.85	13.9	VS	58.1	.50	13.1	N	S	60.3	4	M	100	100	100	185	Q		
II-56-40	62.0	34.7	52	46	2	75.5	1.87	12.7	S	61.1	.52	12.1	N	S	63.5	6	M	110	100	100	189	S		
II-59-91	61.5	31.9	46	52	2	75.2	1.90	13.6	S	58.5	.54	13.0	N	Q	66.3	6	M	100	100	100	176	S		
B61-89	13946	60.0	35.6	71	27	2	76.5	1.92	13.7	S	55.0	.60	12.6	N(G)	U	63.2	3	M-W	90	100	174	U		
61-107	13937	61.5	41.2	76	23	1	76.8	1.84	13.0	VS	55.7	.55	12.5	N	U-Q	60.3	2	M-W	95	95	171	U		
62-85	63.5	35.2	59	39	2	75.9	1.84	12.6	S	57.6	.55	12.1	N	Q-U	60.7	6	M-W	110 W	95	180	U			
ND 363	13828	61.5	33.0	55	44	1	75.7	1.97	13.7	S	59.7	.52	12.6	N	Q	61.9	4	M	100	100	182	Q		
ND 407	13953	63.0	37.5	69	30	1	76.4	1.88	14.1	VS	56.2	.48	13.0	N	Q	62.8	6	M-S	100	90	197	S		
ND 456	13956	62.0	35.5	67	32	1	76.3	2.01	14.7	VS	59.5	.45	13.6	N	S	62.5	4	M	100	95	185	S-Q		
ND 457	13957	62.0	32.4	61	38	1	76.0	2.09	15.0	S	59.7	.47	13.9	N	S	63.8	4	M	105	95	178	Q		
ND 477	63.0	30.0	38	60	2	74.8	2.00	13.9	S	60.5	.50	12.8	N	S	62.5	3	M	95	90	173	Q-U			
SD 625	13948	61.5	31.2	16	83	1	73.8	1.96	13.7	S	59.9	.52	12.9	N	Q	62.5	3	M	110 C	100	156	U		
SD 626	13949	60.5	36.2	54	44	2	75.6	1.85	13.1	S	61.4	.49	12.0	N	S	59.8	3	M	105	100	179	U		
Wisc. 261	62.0	31.3	28	69	3	74.3	1.87	12.4	S	61.2	.48	11.5	N	S	58.7	7	M	105	100	168	U			
Wisc. 262	61.0	33.2	52	46	2	75.5	1.92	13.1	S	58.3	.48	12.0	N	S	61.3	9	M	105	95	177	Q			

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft, (G) - Crude shorts exceptionally granular.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.



TABLE 8

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Morris, Minnesota

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min. 2/ %	Wht. Pro. 2/ %	Kern. Char. 3/ %	Flr. Ext.	Min. @ 65% Ex. 2/ %	Flr. Pro. 2/ %	Mlg. Char. 4/ %	Mlg. Per. 3/ %	Mix. Abs. 2/ %	Mix. Pat. 5/ %	Bake Abs. 2/ %	Mix. Time	Dough Char. 6/ %	Crumb Color 7/ %	Crumb Grain 8/ %	Leaf Vol.	Bake Eval. 3/ %
				Lg. Med.	Sm.																		
Chris	13751	61.5	28.2	21	75	4	73.9	1.90	15.3	S	57.8	.49	14.9	N	S	63.5	5	63.5	3-3/4	M	120 W	95 S10	207 S
Justin	13462	58.5	30.5	36	60	4	74.6	2.14	17.5	S	56.1	.54	17.2	N	S	64.7	3	64.7	3-1/2	M	100	95 S110	214 S
Manitou	13775	59.0	26.7	14	82	4	73.5	1.88	15.7	S	58.5	.52	15.1	N	S	61.9	4	61.9	3-1/2	M	100	95 S10	195 Q
Marquis	3641	58.5	26.8	13	81	6	73.4	1.84	13.8	S	54.0	.57	13.4	N	Q-U	58.7	6	58.7	4-1/2	M	115	100	181 Q
Selkirk	13100	56.0	28.9	18	76	6	73.6	1.79	15.2	Q	58.5	.53	14.6	N	S	63.5	5	63.5	4-1/2	M	110 S1C	95 S11	184 S
Thatcher	10003	57.0	22.7	3	89	8	72.8	1.76	14.4	Q	58.5	.52	13.9	N	S	61.6	5	61.6	4-1/4	M-S	100 S1C	100	190 Q
II-55-11	13773	62.5	34.2	52	45	3	75.5	1.84	15.2	S	55.7	.49	14.8	N	S	64.2	5	64.2	4-1/2	M-S	120 W	100	213 S
II-55-16	62.5	36.9	54	43	3	75.6	1.82	15.1	S	57.5	.46	14.4	N	S	64.2	5	64.2	3-3/4	M	90 G	95 S11	206 Q	
II-56-40	60.0	33.3	39	57	4	74.8	1.78	14.2	S	58.1	.46	13.9	N	S	60.7	8	60.7	9-1/2	M-S	130	95	192 Q	
II-59-91	60.5	29.0	28	69	3	74.3	1.87	15.7	S	55.9	.49	14.9	N	Q	65.0	4	65.0	4-1/4	M-S	130	95	219 S	
B61-89	13946	60.0	38.9	64	33	3	76.1	1.99	14.7	S	54.0	.52	13.7	N(G)	Q	64.4	5	63.9	4-1/2	M	120	95	190 S
61-107	13937	59.5	34.8	58	39	3	75.7	1.71	15.2	S	56.9	.47	13.9	N	S	64.2	3	64.2	3-1/4	M	130	95	190 S
62-85	62.0	33.3	47	50	3	75.2	1.85	15.9	S	55.2	.47	14.9	N	Q	68.8	8	68.8	6	M-S	135	90	10 222 S	
ND 363	13828	60.0	29.1	45	50	5	75.0	1.87	15.1	S	58.8	.47	14.2	N	S	64.4	6	64.4	4-3/4	M	125	95	200 S
ND 407	13953	61.0	38.2	54	41	5	75.5	1.92	16.1	S	56.9	.48	15.5	N	S	65.7	5	65.7	4-1/4	M-S	125	95	220 S
ND 456	13956	61.0	33.3	44	54	2	75.1	1.83	15.4	S	60.8	.42	14.6	N	VS	64.2	4	64.2	3-3/4	M	130	90	195 S
ND 457	13957	61.0	31.7	46	50	4	75.1	1.95	15.7	S	61.1	.44	15.1	N	VS	64.7	4	64.7	3-3/4	M	125	100	192 S
ND 477	60.5	29.5	16	79	5	73.6	1.76	14.8	S	62.1	.45	13.8	N	VS	62.8	4	62.8	3-1/2	M	100	100	185 Q	
SD 625	13948	60.0	30.2	7	90	3	73.2	1.83	15.5	S	61.6	.43	14.9	N	VS	65.0	4	65.0	3-3/4	M-S	110 S1C	95 S10	185 S
SD 626	13949	59.5	33.1	38	59	3	74.8	1.72	14.6	S	61.1	.44	13.6	N	VS	63.5	4	63.5	3-3/4	M	100	90	200 S
Wisc. 261	60.0	28.7	7	86	7	73.0	1.66	13.6	S	62.1	.40	12.7	N	VS	61.6	10	61.6	9	M-S	95	95	176 Q	
Wisc. 262	58.0	27.9	10	82	8	73.1	1.69	14.5	S	60.4	.40	13.5	N	VS	63.8	11	63.8	11-1/2	M-S	105 S1C	95	204 S	

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft, (G) - Crude shorts exceptionally granular.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soegy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 9

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

St. Paul, Minnesota

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 2/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 2/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	
				Lg.	Med. Sm.																			%
Chris	13751	59.0	26.2	16	78	6	73.5	1.93	17.2	S	58.1	.50	16.7	N	S	63.8	3	63.8	2-1/4	M	115 S1C	90 OI	187	Q
Justin	13462	58.5	28.8	26	68	6	74.0	2.07	17.7	S	56.9	.47	17.1	N	S	66.3	5	66.3	3-3/4	M-S	110	90 O	206	S
Manitou	13775	59.5	25.3	5	89	6	73.0	1.95	17.1	S-Q	59.2	.51	16.4	N	S	62.8	3	61.8	2-1/2	M	105 S1C	95	188	Q
Marquis	3641	59.5	28.8	24	71	5	74.0	1.94	16.8	S	56.6	.50	16.0	N	Q	63.5	3	63.5	3	M	100	95	200	S-Q
Selkirk	13100	58.0	29.8	16	77	7	73.5	2.03	16.4	S	60.4	.66	16.1	N	S-Q	64.2	4	63.7	3-1/2	M	100 S1C	95	175	S-Q
Thatcher	10003	59.0	24.8	3	89	8	72.8	2.00	16.7	Q	58.3	.54	16.2	N	S	63.2	3	62.2	2-1/2	M-W	95	100	180	Q-U
II-55-11	13773	61.0	32.9	31	64	5	74.3	2.47	16.5	S	57.8	.45	15.8	N	VS	64.7	5	64.7	4-1/4	M-S	105	95 S1	205	S
II-55-16	60.5	35.0	38	58	4	74.7	1.89	16.2	16.2	S	56.1	.47	15.6	N	Q-S	64.7	5	64.7	4	M-S	115	90 I	202	S
II-56-40	59.5	29.9	13	80	7	73.3	1.94	15.8	15.8	S	59.0	.46	15.2	N	VS	63.2	8	63.2	8-1/4	M	120	90	218	S
II-59-91	58.0	26.7	14	80	6	73.4	2.06	16.4	16.4	S	55.2	.55	15.7	N	Q	64.7	5	64.7	4	M	110 S1C	95 S1I	188	S
B61-89	13946	58.0	30.4	33	61	6	74.4	2.09	17.0	S	55.5	.60	16.0	N-S	U	67.3	5	66.8	4-3/4	M	115 S1C	95	191	S
61-107	13937	58.0	33.6	36	56	8	74.4	1.91	16.7	S	57.6	.52	16.2	N	S	64.7	3	63.7	2-1/2	M-W	110 S1C	100	187	Q
62-85	60.0	28.6	13	81	6	73.4	2.05	17.2	17.2	S	57.1	.50	16.8	N	S	66.0	6	66.0	4-3/4	M-S	110	95 S1O	220	S
ND 363	13828	57.5	27.6	21	72	7	73.7	2.15	17.9	S	57.8	.56	16.8	N	Q	66.0	4	65.0	3-1/4	M	110 S1C	90 IO	205	S
ND 407	13953	60.0	33.4	31	65	4	74.4	2.08	18.2	S	54.5	.51	17.4	N-S	U	69.4	7	69.4	4-1/4	M	100	95	225	S
ND 456	13956	59.5	28.8	17	78	5	73.6	2.09	16.7	S	59.0	.44	15.6	N	VS	65.7	5	65.7	3-3/4	M-S	105	95	202	S
ND 457	13957	59.5	27.9	14	80	6	73.4	2.06	17.3	S	59.7	.51	16.4	N	S	67.0	5	67.0	4-3/4	M-S	100	100	189	S
ND 477	59.0	27.1	6	88	6	73.0	2.00	16.4	16.4	S	58.3	.52	15.7	N	S	66.3	5	65.8	3-3/4	M	100	100	197	S
SD 625	13948	59.5	27.7	3	91	6	72.9	1.96	16.4	S	59.9	.50	15.5	N	S	65.0	3	64.5	3	M	110 S1C	95	177	Q
SD 626	13949	58.0	28.7	11	82	7	73.2	2.00	16.2	S	58.0	.50	15.2	N	S	64.2	3	63.7	3	M	105 S1C	95	196	S
Wisc. 261	58.0	25.1	3	83	14	72.5	1.97	16.5	16.5	S-Q	59.0	.48	15.8	N	S	64.2	7	64.2	6-3/4	M	105 S1C	95 S1O	191	S
Wisc. 262	58.0	27.9	15	78	7	73.4	1.98	16.2	16.2	S	59.5	.46	15.4	N	VS	65.0	6	65.0	5-1/4	M-S	105	90 IO	211	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 10

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Waseka, Minnesota

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht.		Wht. Pro.	Kern. Char.	Flr. Ext.	Flr. Min. @ 65% Ex.		Mlg. Char.	Mlg. Per.	Mix. Abs.		Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				Lg.	Med. Sm.		%	%				%	%			%	%								
Chris	13751	60.0	28.7	33	64	3	74.5	1.94	16.4	S	59.7	.44	15.5	N	S	62.8	2-3/4	M	110	80	OI	208	Q		
Justin	13462	59.0	30.2	38	58	4	74.7	2.04	17.3	S	58.6	.46	16.1	N	S	68.8	4	M-S	95	80	OI	206	S		
Manitou	13775	59.0	24.8	13	83	4	73.5	1.95	16.8	S	58.8	.49	15.8	N	S	66.0	3-1/4	M	95	95	SIC	211	S		
Marquis	3641	59.0	26.6	18	76	6	73.6	1.99	15.0	S	58.9	.55	14.2	N	S	63.5	3-3/4	M	100	95	SIO	208	Q		
Selkirk	13100	56.0	26.2	7	85	8	73.0	2.05	16.1	Q	59.0	.53	15.3	N	S	64.2	4	M	110	SIC	95	SIO	179	Q	
Thatcher	10003	58.0	23.4	4	89	7	72.9	1.92	15.6	U	59.5	.53	14.7	N	S	62.3	3-1/2	M	100	95	SIO	205	Q		
II-55-11	13773	61.0	34.1	53	43	4	75.5	1.91	16.0	S	58.5	.46	15.1	N	VS	63.5	3-3/4	M	105	W	95	225	S-Q		
II-55-16	61.0	36.8	56	40	4	75.6	1.87	16.2	S	57.2	.49	14.8	N	S	64.2	4	M	100	90	200	90	200	S		
II-56-40	59.0	31.5	34	61	5	74.5	1.88	15.0	S	59.2	.45	14.1	N	S	62.3	6	M-S	105	W	95	I	215	S-Q		
II-59-91	59.0	28.3	27	68	5	74.1	1.90	15.3	S	58.8	.49	14.4	N	S	65.0	5	4-1/2	M-S	100	95	95	197	S		
B61-89	13946	58.0	33.1	60	35	5	75.8	1.90	15.6	S	54.9	.58	14.5	N(G)	U	64.7	4	M-S	90	95	I	195	Q		
61-107	13937	58.5	39.2	62	33	5	75.9	1.80	15.9	S	57.8	.49	15.3	N	S	65.7	3	M	95	95	SIO	202	Q		
62-85	62.0	34.0	59	39	2	75.9	1.94	16.1	S	58.0	.50	15.4	N	S	68.8	6	4-1/4	M-S	120	BW	95	SIO	195	S	
ND 363	13828	58.5	32.3	46	50	4	75.1	2.01	16.6	S	59.0	.52	15.4	N	S	65.7	4-1/2	M-S	100	95	SIO	209	S		
ND 407	13953	60.5	36.8	61	36	3	75.9	1.97	17.0	S	54.0	.49	15.7	M-S	U	64.7	3-1/2	M	95	95	95	188	S		
ND 456	13956	60.0	32.1	47	50	3	75.2	1.98	15.8	S	58.7	.43	14.5	N	VS	65.0	4	M	100	90	90	197	S		
ND 457	13957	60.0	31.2	49	49	2	75.3	2.03	16.7	S	62.1	.45	15.6	N	VS	65.7	3	M	95	95	95	184	Q		
ND 477	60.0	31.1	31	65	4	74.4	1.93	15.8	S	62.7	.45	14.7	N	VS	64.7	4	3-1/4	M	105	95	95	196	S		
SD 625	13948	59.5	31.0	12	85	3	73.5	1.93	15.8	S	64.0	.48	15.1	S	S	66.6	3-1/4	M	110	C	95	SIC	166	Q	
SD 626	13949	58.5	31.9	30	65	5	74.3	1.95	15.5	S	61.3	.48	14.3	N	S	64.2	4	M	95	95	95	194	Q-S		
Wisc. 261	58.5	28.5	9	84	7	73.1	1.84	15.8	S	64.3	.43	15.1	N	VS	65.7	6	5-3/4	M-S	100	95	SIO	200	S		
Wisc. 262	57.5	28.1	18	76	6	73.6	1.84	15.6	S	62.9	.41	14.9	N	VS	67.6	7	7	M-S	100	95	95	219	S		
1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.																									
2/ 14% moisture basis.																									
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.																									
4/ N - Normal, H - Hard, S - Soft, (G) - Crude shorts exceptionally granular.																									
5/ Refer to reference mixogram for numerical curve pattern.																									
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.																									
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.																									
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.																									

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/

3/

4/

5/

6/

7/

8/

1/ 14% moisture basis.

2/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

3/ N - Normal, H - Hard, S - Soft, (G) - Crude shorts exceptionally granular.

4/ Refer to reference mixogram for numerical curve pattern.

5/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

6/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

7/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 11

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Bozeman, Montana

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #Bu.	1000 Kwt.	Kernel Lg.	Size Med. Sm.	Pot. Yld.	Wht. Min. 2/ %	Wht. Pro. 2/ %	Kern. Char. 3/ %	Flr. Ext.	Min. 65%Ex. 2/ %	Flr. Pro. 2/ %	Mlg. Char. 4/ %	Mlg. Per. 3/ %	Mix. Abs. 2/ %	Mix. Pat. 5/ %	Bake Abs. 2/ %	Mix. Time	Dough Char.	Crumb Color 7/ %	Crumb Grain 8/ %	Loaf Vol.	Bake Eval. 3/ %	cc.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 12

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Havre, Montana

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size Lg. Med. Sm.	Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min.@ 2/	Flr. 2/	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
Chris	13751	62.0	27.9	6	92	2	73.2	1.53	15.7	S-Q												
Justin	13462	61.0	31.3	40	58	2	74.9	1.64	16.5	S												
Manitou	13775	62.0	27.2	9	89	2	73.4	1.60	16.2	S-Q												
Marquis	3641	63.0	29.4	15	84	1	73.7	1.47	14.9	S												
Selkirk	13100	61.0	31.2	26	73	1	74.3	1.53	14.9	S												
Thatcher	10003	61.0	27.1	20	78	2	73.9	1.68	16.0	S												
II-53-11	13773	63.0	35.5	49	50	1	75.4	1.63	16.2	S												
II-53-16		63.5	37.0	58	41	1	75.9	1.48	15.4	S												
II-56-40		62.0	32.2	43	56	1	75.1	1.67	15.9	S												
II-59-91		62.0	31.1	29	70	1	74.4	1.22	16.4	S												
B61-89	13946	62.5	36.1	73	26	1	76.6	1.78	17.5	VS												
61-107	13937	61.5	34.5	52	47	1	75.6	1.53	16.2	S												
62-85		63.0	32.5	46	53	1	75.3	1.55	15.7	S												
ND 363	13828	61.5	32.6	59	40	1	75.9	1.66	17.1	S												
ND 407	13953	62.5	34.6	53	46	1	75.6	1.63	16.8	S												
ND 456	13956	61.5	32.5	49	50	1	75.4	1.60	15.9	S												
ND 477	13957	62.0	30.5	37	62	1	74.8	1.63	16.2	S												
ND 477		62.5	31.6	31	68	1	74.5	1.65	16.5	S												
SD 625	13948	62.0	29.8	5	94	1	73.2	1.61	16.4	S-Q												
SD 626	13949	61.5	32.8	27	72	1	74.3	1.63	16.1	S												
Wisc. 261		63.0	32.2	12	87	1	73.6	1.66	16.3	S												
Wisc. 262		63.0	33.8	41	58	1	75.0	1.75	16.9	S												

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft, (G) - Crude shorts exceptionally granular.

5/ Refer to reference micrograph for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 13

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Sidney, Montana

1966 CROP

Variety or Sel. No.	C. I. No.	T. W. 1/ #Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min. @ 65% Ex.	Flr. 2/ %	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				Lg.	Med. Sm.																		
Chris	13751	58.0	19.4	0	84	16	72.2	1.74	18.0	S	61.5	.62	17.4	N	Q	63.5	4	63.5	3-1/4	M	105 C	90	182 S
Justin	13462	59.0	25.1	2	93	5	72.9	1.60	17.9	S	62.2	.43	17.3	N	VS	65.0	4	65.0	3-1/2	M	110	90	165 S
Manitou	13775	56.0	20.2	0	86	14	72.3	1.69	18.1	S	59.3	.50	17.0	N	S	63.2	4	63.2	3	M-W	105 C	80	177 S-Q
Marquis	3641	54.0	22.5	1	87	12	72.5	1.66	16.7	S	60.4	.46	16.2	N	S	64.2	5	64.2	4-1/4	M-S	110	90	177 S
Selkirk	13100	58.5	21.4	0	91	9	72.6	1.65	17.2	S	58.0	.49	16.4	N	S	64.2	5	64.2	3-3/4	M	110	95	187 S
Thatcher	10003	57.0	20.0	1	86	13	72.4	1.63	17.6	S	58.7	.54	16.8	N	S-Q	62.5	3	62.5	2-3/4	M	105 C	90	196 Q
II-55-11	13773	61.0	26.7	2	94	4	72.9	1.56	16.7	S	60.9	.43	15.9	N	VS	61.3	6	61.3	4	M-S	105	90 I	206 S-Q
II-55-16	62.0	27.9	2	94	4	72.9	1.48	15.8	S	60.7	.42	15.1	N	VS	62.5	5	62.5	4-1/2	M	110	85 O	192 S	
II-56-40	57.0	24.5	1	90	9	72.6	1.57	15.9	S	59.5	.41	15.1	N	VS	61.3	11	61.3	11	S	110	80 IO	212 S	
II-59-91	57.0	19.3	0	90	10	72.5	1.67	17.2	S	58.3	.46	16.5	N	S	65.0	6	65.0	6	M-S	110	95	189 S	
B61-89	13946	59.5	28.5	12	86	2	73.5	1.53	16.7	S	58.0	.45	16.0	N	S-Q	66.6	6	66.6	5-3/4	M-S	120 BC	95	204 S
61-107	13937	59.0	29.3	5	92	3	73.1	1.43	17.2	S	58.9	.60	16.6	N-S	Q	64.2	4	64.2	3-1/4	M	105 S1C	90	192 S
62-85	61.0	25.3	2	94	4	72.9	1.60	17.5	S	58.7	.53	17.3	N	Q	66.0	6	66.0	5	M-S	110	95	193 S	
ND 363	13828	58.0	27.5	4	92	4	73.0	1.52	17.1	S	58.9	.42	16.3	N	S	68.2	7	68.2	5-1/2	M-S	105 S1C	95	181 S
ND 407	13953	59.5	27.5	3	93	4	73.0	1.62	17.7	S	56.8	.44	16.9	N	Q	70.3	8	70.3	7-3/4	S	105 S1C	80 O	219 S
ND 456	13956	58.5	25.8	3	93	4	73.0	1.53	17.0	S	60.4	.42	16.1	N	VS	67.6	6	67.6	5	S	100 S1C	90 O	195 S
ND 457	13957	59.5	23.6	2	93	5	72.9	1.59	17.7	S	61.7	.40	16.9	N	VS	67.9	5	67.9	4	M	105	90	160 S-Q
ND 477	59.0	24.9	1	94	5	72.8	1.57	17.8	S	58.9	.47	16.9	N	S-Q	67.6	5	67.6	3-1/4	M	100	95	170 S	
SD 625	13948	60.0	26.5	1	94	5	72.8	1.46	16.2	S	60.7	.40	15.7	N	VS	67.9	5	67.9	4	M	115 BC	95	164 S
SD 626	13949	57.0	24.0	1	92	7	72.7	1.55	16.9	S	57.0	.46	16.0	N-S	Q	67.0	5	67.0	3-1/4	M-S	110 BC	95	184 S
Wisc. 261	57.0	22.4	0	82	18	72.1	1.57	17.1	S	60.2	.42	16.4	N	VS	67.0	9	67.0	9-1/4	M-S	110 C	90	191 S	
Wisc. 262	57.5	24.1	1	92	7	72.7	1.54	16.6	S	58.0	.39	16.2	N	S	67.3	9	67.3	9	M-S	110 C	90	215 S	

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 14

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Carrington, North Dakota (Irrigated)

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #Bu.	1000 Kwt.	Kernel Size Lg. Med. Sm.	Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min. 65%Ex.	Flr. 2/ %	Mlg. 4/ %	Mlg. Char.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				%	%	%	%	%	%	%	%	%	%	%	%	%	min.	6/ %	2/ %	g/ cc.		
Chris	13751	60.0	28.3	35	62	3	74.6	1.68	16.6	S	61.4	.48	15.8	N	S	69.4	6	M-S	95	95	214	S
Justin	13462	59.0	32.8	62	36	2	76.0	1.92	17.5	S	58.6	.48	17.0	N	S-Q	70.0	4	M-S	90	S10	210	S
Manitou	13775	60.5	31.2	32	64	4	74.4	1.78	16.2	S	61.4	.43	15.5	N	VS	62.8	3	M	105	S1C	80	212
Marquis	3641	60.0	31.0	26	68	6	74.0	1.93	15.8	S	58.1	.47	15.0	N	Q	63.2	3	M	105	95	191	U
Selkirk	13100	57.5	37.6	44	51	5	75.0	1.92	16.7	S	62.2	.47	16.2	N	S	65.0	4	M	95	C	177	S-Q
Thatcher	10003	57.5	22.5	1	91	8	72.7	1.84	15.6	Q	60.0	.48	14.9	N	S	65.0	5	M	105	C	90	204
II-55-11	13773	62.0	35.5	57	32	11	75.3	1.77	15.4	S	60.0	.43	14.9	N	VS	66.0	5	M-S	110	80	0	225
II-55-16		62.0	41.0	64	32	4	76.0	1.74	15.7	S	57.8	.44	15.0	N	Q	67.0	5	M-S	105	S10I	213	S
II-56-40		59.0	30.1	34	61	5	74.5	1.82	14.5	S	61.0	.43	13.7	N	VS	62.8	6	M	95	95	214	Q
II-59-91		59.0	29.2	43	53	4	75.0	1.81	15.7	S	58.4	.43	15.0	N	Q-S	66.6	5	M-S	95	95	196	S
B61-89	13946	59.0	28.4	55	40	5	75.5	1.80	15.1	S	57.1	.48	14.3	N	Q	66.3	5	M	105	C	95	S1I
61-107	13937	60.5	35.3	70	28	2	76.4	1.53	16.0	S	57.1	.44	15.2	N	Q	64.4	3	M	110	90	209	U
62-85		62.5	32.5	61	37	2	76.0	1.72	15.8	S	58.1	.45	15.2	N	Q-S	67.9	6	M	110	W	95	S1I
ND 363	13828	59.0	31.0	57	39	4	75.7	1.79	16.0	S	60.0	.45	15.0	N	S	66.0	4	M	110	90	213	Q
ND 407	13953	60.5	37.5	65	33	2	76.2	1.76	16.2	S	55.7	.42	15.7	N-S	Q-U	67.3	5	M-S	105	90	0I	216
ND 456	13956	60.5	28.8	44	54	2	75.1	1.80	15.8	S	60.1	.39	14.9	N	VS	67.1	5	M	110	95	182	S-Q
ND 457	13957	59.5	31.1	56	40	4	75.7	1.85	16.5	S	59.3	.39	15.7	N	S	66.0	5	M	105	95	S1I	183
ND 477		60.5	28.2	36	62	2	74.7	1.83	15.3	S	59.3	.41	14.7	N	S	65.0	4	M	110	95	200	Q
SD 625	13948	61.0	28.9	20	78	2	73.9	1.87	15.9	Q	59.5	.47	15.3	N	S	65.5	3	M	105	S1C	95	S10
SD 626	13949	60.0	30.0	43	53	4	75.0	1.64	14.6	S	59.9	.44	13.8	N	S	62.7	3	M	100	90	OS1I	215
Wisc. 261		60.5	28.6	8	87	5	73.2	1.68	15.0	Q-S	61.0	.40	14.2	N	VS	64.4	9	M	105	S1C	90	199
Wisc. 262		60.0	28.2	36	60	4	74.6	1.74	15.1	S	58.9	.40	14.4	N	Q-S	66.0	8	M	105	95	199	S-Q

1/ Clean dry - subtract 1#/Bu. for dockage free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 15

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Fargo, North Dakota

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min.		Wht. Pro.	Kern. Char.	Flr. Ext.	Flr. Min. @ 65% Ex.		Mlg. Char.	Mlg. Per.	Mix. Abs.		Mix. Pat.	Bake Abs.		Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				g.	%	%	%	2/ %	2/ %		3/ %	%	2/ %	2/ %		3/ %	2/ %	2/ %	5/ %	2/ %	min.	6/ %	7/ %	8/ %	cc.		
Chris	13751	61.0	26.2	7	91	2	73.3	1.84	16.5	Q	Q	61.4	.43	15.4	N	S	66.6	5	66.6	5	66.6	3-3/4	M-S	105	90 0	184	S
Justin	13462	60.5	31.3	38	60	2	74.8	2.11	17.1	S	S	63.5	.46	16.1	N	S	70.5	7	70.5	7	70.5	6-1/2	M-S	90	70 0	182	Q
Manitou	13775	60.5	26.0	5	93	2	73.2	1.96	16.4	Q	Q	61.7	.47	15.1	N	Q	63.2	4	63.2	4	63.2	3-1/4	M-S	95	80 0	190	S-Q
Marquis	3641	60.0	26.4	6	90	4	73.1	1.99	15.7	Q	Q	61.5	.47	14.8	N	S	63.8	4	63.8	4	63.8	3-1/4	M	105	95	175	S-Q
Selkirk	13100	58.0	31.3	21	77	2	74.0	1.96	15.9	S	S	64.4	.46	15.2	N	S	63.8	5	63.8	5	63.8	4-1/4	M-W	100 SIC	100	158	Q
Thatcher	10003	60.5	25.3	3	93	4	73.0	1.92	15.7	Q	Q	62.9	.47	14.6	N	S	62.5	4	62.5	4	62.5	3-1/2	M-S	105 SIC	90 0	190	S-Q
II-55-11	13773	63.0	35.5	52	46	2	75.5	1.85	15.2	S	S	62.8	.47	14.0	N	S	63.2	6	63.2	6	63.2	5	M-S	110	90	189	S-Q
II-55-16	63.0	37.5	61	38	1	76.0	1.81	15.3	VS	VS	VS	62.0	.45	14.2	N	S	69.1	6	69.1	6	69.1	6-1/2	M-S	80	95	182	Q
II-56-40	61.5	33.7	21	78	1	74.0	1.84	15.4	S	S	S	63.0	.45	14.2	N	S	64.2	8	64.2	8	64.2	8-3/4	M-S	90	95	202	S-Q
II-59-91	60.5	28.7	13	85	2	73.6	1.86	16.1	S	S	S	61.5	.48	14.8	N	Q	65.7	6	65.7	6	65.7	5-3/4	M-S	90	95	191	S-Q
B61-89	13946	60.5	36.0	54	44	2	75.6	1.89	15.6	S	S	60.1	.52	14.5	N	U	65.3	5	65.3	5	65.3	4	M-S	95	95	199	S
61-107	13937	62.0	31.8	58	40	2	75.8	1.73	15.0	S	S	60.8	.44	14.4	N	Q	61.9	4	61.9	4	61.9	3-1/4	M	100	95	187	Q-U
62-85	62.0	32.2	28	70	2	74.1	1.92	15.9	S	S	S	61.7	.45	15.2	N	S	64.2	6	64.2	6	64.2	5-1/4	M-S	115	80 IO	201	Q-S
ND 363	13828	60.5	30.6	38	60	2	74.8	1.88	15.9	S	S	62.2	.46	14.6	N	S	63.2	5	63.2	5	63.2	4-1/2	M-S	90	90 0	199	S-Q
ND 407	13953	61.5	36.5	58	40	2	75.8	1.96	17.5	S	S	55.8	.47	16.2	N-S	U	67.9	6	67.9	6	67.9	4-1/2	M-S	110	70 0	204	Q
ND 456	13956	62.0	31.0	23	75	2	74.1	1.91	15.2	S	S	61.8	.42	13.9	N	S	62.5	5	62.5	5	62.5	4-1/4	M-S	110 SIC	95	190	Q-S
ND 457	13957	61.5	28.4	28	70	2	74.3	2.03	16.1	S	S	63.6	.49	14.9	N	Q	64.2	6	64.2	6	64.2	5	M-S	110 SIC	90	164	Q
ND 477	62.0	28.3	7	91	2	73.3	1.84	15.4	S-Q	S-Q	S-Q	61.8	.45	14.1	N	S	63.5	5	63.5	5	63.5	4-1/4	M	100 SIC	93	192	Q
SD 625	13948	62.0	29.8	5	93	2	73.2	1.83	14.9	S-Q	S-Q	62.9	.43	14.0	N	S	62.3	2	62.3	2	62.3	2	M-W	115 BC	95	164	U
SD 626	13949	61.0	31.3	22	71	7	73.8	1.70	14.6	S	S	61.1	.48	13.6	N	Q	60.7	3	60.7	3	60.7	3	M	110 SIC	90	184	U
Wisc. 261	60.5	27.2	7	89	4	73.2	1.83	15.6	Q	Q	Q	63.0	.43	14.6	N	S	62.8	8	62.8	8	62.8	7-1/4	M-S	100	100	191	S-Q
Wisc. 262	59.5	27.0	7	89	4	73.2	1.79	15.0	Q	Q	Q	61.8	.40	14.1	N	S	63.2	10	63.2	10	63.2	10-1/4	M-S	110 C	100	182	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 16

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Minot, North Dakota

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size Lg. Med. Sm.	Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Flr. Min.	65%Ex. Pro.	Flr. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
Chris	13751	62.5	29.7	27	70	3	74.2	1.68	17.1	S	60.9	.48	16.3	N	S	67.9	3-1/4	M	115	90 I	208	S
Justin	13462	60.5	33.6	59	37	4	75.8	1.95	18.0	S	57.8	.46	17.6	N	S-Q	70.5	5	M-S	115 SIC	90 IO	186	S
Manitou	13775	61.0	28.9	32	63	5	74.4	1.82	17.1	S	60.7	.46	16.5	N	S	63.5	3	M	115	95 SIO	180	Q
Marquis	3641	61.5	30.9	24	70	6	73.9	1.75	15.4	Q	59.0	.42	14.9	N	S	63.8	2-1/2	M	105	95	185	Q-U
Selkirk	13100	59.0	33.7	38	57	5	74.7	1.89	16.6	S	58.5	.45	16.4	N	S	65.0	3	M	110	95 SII	190	S-Q
Thatcher	10003	60.5	28.1	15	77	8	73.4	1.73	15.9	Q	62.1	.44	15.3	N	S	62.5	2-1/2	N	115	95 SIO	203	Q-U
II-55-11	13773	62.0	40.2	61	35	4	75.9	1.72	16.5	S	61.7	.41	15.8	N	VS	65.0	4	M-S	105	95 SII	218	S
II-55-16		62.5	41.0	62	33	5	75.9	1.66	15.9	S	60.4	.41	15.2	N	VS	70.0	6	M	110 SIC	100	178	S-Q
II-56-40		61.0	36.1	48	47	5	75.2	1.75	16.1	S	60.4	.44	15.4	N	S	67.9	7	M-S	105	90 IO	203	S
II-59-91		61.0	31.3	44	52	4	75.0	1.82	16.1	S	59.7	.45	15.4	N	S	70.0	6	M-S	105	95	200	S
B61-89	13946	60.5	38.8	69	27	4	76.3	1.77	16.5	VS	57.0	.49	15.5	N-S	Q	70.0	5	M	110 SIC	90 I	190	S
61-107	13937	60.0	40.0	59	36	5	75.7	1.58	16.1	S	58.3	.43	15.8	N	S	64.2	2	M-W	120 W	90 I	197	U
62-85		63.0	36.5	61	37	2	76.0	1.74	16.6	VS	58.7	.42	16.3	N	S	70.0	7	M-S	125 W	90	203	S
ND 363	13828	61.0	36.5	66	30	4	76.1	1.83	17.2	VS	59.7	.42	16.0	N	VS	67.0	4	M	105 SIC	90 Q	209	Q
ND 407	13953	62.0	39.2	70	27	3	76.4	1.90	17.5	VS	54.4	.45	16.9	N-S	U	69.7	6	M	115 W	90 I	199	S
ND 456	13956	62.5	36.6	68	30	2	76.3	1.69	16.4	VS	59.7	.36	15.3	N	VS	69.7	6	M-S	120	95 SII	182	S
ND 457	13957	62.0	32.9	52	43	5	75.4	1.76	17.0	S	61.4	.37	15.9	N	VS	70.3	4	M-S	110	90 Q	172	Q
ND 477		63.0	33.2	46	52	2	75.1	1.75	16.4	S	59.9	.39	15.3	N	VS	66.3	6	M	115 W	95 SII	204	Q-U
SD 625	13948	60.0	31.9	17	79	4	73.7	1.87	17.0	S-Q	61.7	.44	16.5	N	S	66.6	3	M-W	110 SIC	95	183	U
SD 626	13949	59.5	33.8	37	58	5	74.6	1.93	16.5	S	59.4	.45	15.3	N	S	64.2	2	M	115 W	95 SIO	201	U
Wisc. 261		61.5	33.6	30	66	4	74.3	1.75	16.3	S	62.1	.39	15.5	N	VS	65.3	5	M-S	110	95 SIOI	209	S
Wisc. 262		60.0	34.7	43	53	4	75.0	1.89	16.5	S	61.0	.38	15.7	N	VS	65.7	5	M-S	115 W	90 OI	214	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 17

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Williston, North Dakota

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min. 2/ %	Wht. Pro. 2/ %	Kern. Char. 3/ %	Flr. Ext. 65%Ex.	Min.@ 2/ %	Flr. Pro. 2/ %	Mlg. Char. 4/ %	Mlg. Per. 3/ %	Mix. Abs. 2/ %	Mix. Pat. 5/ %	Bake Abs. 2/ %	Mix. Time	Dough Char. 6/ %	Crumb Color 7/ %	Crumb Grain 8/ g	Loaf Vol.	Bake Eval. 9/ cc.
				Lg. Med.	Sm.																		
Chris Justin Manitou Marquis Selkirk	13751	60.0	24.4	3	92	5	72.9	1.74	17.1	S	62.9	.45	16.7	N	S	64.2	4	64.2	3-1/2	M-S	110 C	85 IO	188 S
	13462	59.0	26.7	14	83	3	73.6	1.79	17.6	S	62.0	.42	17.1	N	S	67.9	6	67.9	4-3/4	M-S	110	80	180 S
	13775	58.0	22.5	1	90	9	72.6	1.76	17.4	Q	61.3	.46	16.7	N	Q	64.2	3	64.2	3-1/4	M-S	110 VCB	90	190 S
	3641	58.0	24.5	4	89	7	72.9	1.79	16.8	S	60.8	.45	16.1	N	Q	63.2	4	63.2	3-3/4	M-S	105 C	90	190 S
	13100	56.0	27.2	3	91	6	72.9	1.75	16.7	S	62.4	.45	16.2	N	S	63.5	4	63.5	4-1/4	M-S	105 C	85	177 S
Thatcher II-55-11 II-55-16 II-56-40 II-59-91	10003	59.0	23.0	3	91	6	72.9	1.75	17.4	Q	59.5	.49	16.4	N	Q-U	62.5	3	62.5	3	M-S	95	80 O	192 Q
	13773	62.0	31.7	22	75	3	74.0	1.84	16.5	VS	61.3	.46	15.9	N	S-Q	63.2	4	63.2	4-1/2	M-S	95	85 IO	209 S
	62.0	32.1	23	74	3	74.0	1.65	15.4	VS	60.8	.44	14.9	N	S	S	63.5	5	63.5	4-1/4	M-S	110	95	190 S
	60.0	28.7	7	90	3	73.2	1.70	15.4	S	61.3	.41	15.0	N	S	S	61.9	9	61.9	9-3/4	M-S	110	80 O	204 S
	60.0	25.6	4	93	3	73.1	1.80	17.3	S	58.5	.47	16.6	N	Q-U	Q	66.0	6	66.0	5-3/4	S	115	90	190 S
B61-89 61-107 62-85 ND 363 ND 407	13946	60.5	34.5	49	50	1	75.4	1.72	16.7	VS	56.6	.48	16.0	N(G)	Q-U	66.3	4	66.3	4	M-S	120	70 O	202 Q
	13937	59.5	30.6	21	76	3	73.9	1.69	17.4	S	58.8	.48	17.1	N	Q-U	63.2	2	63.2	2-1/2	M	115	80 O	195 Q-U
	61.0	28.9	7	91	2	73.3	1.82	17.2	S	58.0	.54	16.9	N	U	U	67.6	6	67.6	5	M-S	115	85	205 S
	13828	58.5	27.9	15	82	3	73.6	1.83	17.7	S	60.5	.48	16.6	N	Q-U	64.2	5	64.2	4-1/4	M-S	110 BC	100	197 S
	13953	61.0	32.8	25	73	2	74.2	1.75	17.5	S	57.6	.42	17.0	N-S	Q	67.3	6	67.3	4-1/2	M-S	95	90 O	212 S
ND 456 ND 457 ND 477 SD 625 SD 626	13956	60.5	30.0	15	82	3	73.6	1.82	16.6	S	61.5	.53	15.7	N	U	64.7	4	64.7	3-1/2	M	115	95	172 Q
	13957	60.0	26.3	8	87	5	73.2	1.85	16.9	S	61.7	.56	16.1	N	U	65.3	5	65.3	4	M-S	110 S1C	80 O	164 Q-U
	60.0	28.2	3	95	2	73.1	1.79	17.1	S	62.0	.50	16.2	N	U	U	64.7	4	64.7	3	M	105	95	181 S
	13948	60.0	28.6	1	96	3	72.9	1.78	17.0	S	61.5	.57	16.5	N	U	64.7	3	64.7	2-1/2	M-W	115 S1C	95	159 U
	13949	58.5	28.3	7	90	3	73.2	1.77	17.0	S	59.2	.58	16.1	N-S	U	64.4	3	64.4	2-1/2	M	105 C	80 IO	192 Q
Wisc. 261 Wisc. 262	60.5	28.2	5	93	2	73.2	1.72	16.7	S	60.0	.52	16.0	N	U	U	63.8	6	63.8	5-1/4	M-S	110	80 OI	196 S-Q
	60.0	26.9	1	94	5	72.8	1.71	16.6	S	62.4	.51	15.7	N	U	U	61.9	7	61.9	5-3/4	M	110	95	176 S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft, (C) - Crude shorts exceptionally granular.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 18

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Higmore, South Dakota

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min.		Wht. Pro.	Kern. Char.	Flr. Ext.	Min. 65%Ex.	Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 19

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Watertown, South Dakota

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Flr. Min.	Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Leaf Vol.	Bake Eval.
				%	%	%		%	%	%	%	%	%	%	%	%	%	%	min.	g./	l./	g./	cc.	
Chris	13751	59.0	22.2	1	91	8	73.0	1.80	17.1	S	62.1	.51	16.6	N	S	75.0	10	74.0	6-1/2	M	100	90 O	184	S
Justin	13462	58.5	25.7	3	91	6	72.9	1.91	17.3	S	61.3	.43	16.5	N	S	70.0	6	70.0	4-1/2	M-S	100	90 OI	205	S
Manitou	13775	58.0	23.5	1	91	8	72.7	1.83	16.8	S	62.7	.45	16.0	N	S	64.2	4	64.2	3-1/4	M-S	100	95 SII	202	S-Q
Marquis	3641	59.0	22.5	1	89	10	72.1	1.91	15.9	S	60.6	.45	15.3	N	S	64.2	5	64.2	4	M-S	100	95 SII	201	S-Q
Selkirk	13100	53.0	22.2	1	79	20	72.5	1.97	16.1	S-Q	64.0	.48	15.8	N	S	64.7	4	64.7	3-1/2	M	90	95 SIO	187	S-Q
Thatcher	10003	56.0	21.4	1	84	15	72.3	1.89	16.6	S-Q	62.7	.48	16.0	N	S	64.2	4	64.2	3-1/4	M	95	95	201	Q
II-55-11	13773	60.5	29.8	13	82	5	73.4	1.86	16.6	S	62.9	.44	16.0	N	S	70.9	9	70.9	7-3/4	M-S	100	100	217	S
II-55-16	61.0	30.8	14	81	5	73.4	73.4	1.78	15.6	S	62.5	.44	14.9	N	S	70.9	8	70.9	6-1/2	M-S	95	90 OI	198	S
II-56-40	58.0	26.5	3	86	11	72.6	72.6	1.80	13.9	S	64.6	.43	13.2	N	VS	64.2	10	64.2	14	S	100	95 SII	184	S-Q
II-59-91	55.5	22.3	2	87	11	72.6	72.6	1.88	15.9	S	61.7	.51	15.1	N	S-Q	70.7	10	70.7	11	M-S	95	95 SIO	182	S
B61-89	13946	58.0	28.2	13	79	8	73.3	1.87	16.4	S	61.9	.49	15.4	N	S	70.9	8	70.4	7-3/4	M-S	95	95	176	S
61-107	13937	57.5	29.1	6	85	9	72.9	1.78	16.2	S	62.3	.45	15.7	N	S	69.1	6	69.1	4-1/2	M	100	95 I	200	S
62-85	61.0	29.2	7	90	3	73.2	73.2	1.76	18.0	S	60.0	.48	17.0	N	S-Q	70.9	8	70.9	6	M-S	100 W	89 OI	215	S-Q
ND 363	13828	56.5	24.1	2	86	12	72.5	1.98	17.4	S	62.5	.50	16.3	N	S	70.7	8	70.7	7	M-S	95	95	211	S
ND 407	13953	59.5	30.5	11	85	4	73.2	1.91	17.3	S	59.6	.43	16.8	N	S-Q	70.9	8	70.9	6-1/2	M-S	95	90 O	222	S-Q
ND 456	13956	58.5	25.8	2	91	7	72.8	1.88	17.0	S	63.1	.43	15.9	N	VS	69.1	6	69.1	4	M	90	90	199	S-Q
ND 457	13957	58.0	25.5	1	91	8	72.7	1.90	16.5	S	63.4	.43	15.6	N	VS	66.3	6	66.3	4-3/4	M-S	100	95 SIO	194	S-Q
ND 477	58.0	24.4	1	89	10	72.6	72.6	1.92	16.5	S	62.7	.48	15.7	N	S	70.9	7	69.9	4-3/4	M	95	95	201	S
SD 625	13948	57.5	24.3	1	85	14	72.4	1.80	15.8	S	62.9	.45	14.9	N	S	70.7	6	69.7	4	M	105 C	95	175	S-Q
SD 626	13949	56.0	22.8	1	79	20	72.1	1.86	15.7	S	63.1	.49	14.8	N	S	70.9	7	70.4	5	M-S	95	85	204	Q
Wisc. 261	56.5	23.9	0	84	16	72.2	72.2	1.68	16.1	S	64.4	.40	15.5	N	VS	70.7	10	70.2	14-1/4	M-S	95	95	195	S
Wisc. 262	55.5	23.8	1	88	11	72.5	72.5	1.78	16.5	S	63.9	.39	15.4	N	VS	70.9	10	69.9	11-3/4	S	95	90 O	205	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick wall, SI - Slightly, C - Close.

TABLE 20

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Madison, Wisconsin

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Flr. Min.	65%Ex. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				Lg.	Med.	Sm.																		
Chris	13751	58.0	26.4	9	88	3	73.3	2.11	16.7	S	59.3	.56	15.9	N	S	64.2	3	64.2	2-1/2	M	115 W	95 SII	190	S-Q
Justin	13462	59.0	31.2	40	58	2	74.9	2.17	17.2	S	56.7	.49	16.5	N-S	Q	66.6	5	66.6	3-3/4	M	110 SLC	95	194	S
Manitou	13775	57.0	24.9	6	91	3	73.2	2.07	16.3	Q	58.6	.56	15.3	N	Q	61.6	3	61.6	3	M	110	95	202	S-Q
Marquis	3641	56.0	24.2	8	87	5	73.2	2.20	13.7	Q	54.8	.56	12.9	N-S	Q	58.7	4	58.7	3-3/4	M	115	95 SII	189	Q
Selkirk	13100	55.0	27.2	15	81	4	73.6	2.13	14.4	Q	59.3	.53	13.7	N	S	61.9	3	61.9	3-1/4	M	110	95 SII	175	Q
Thatcher	10003	56.0	21.8	2	91	7	72.8	2.09	14.3	Q	58.9	.58	13.4	N	Q-U	63.2	5	63.2	4-1/4	M	115	95 SII	185	S
II-55-11	13773	58.0	32.6	31	68	1	74.5	2.04	15.5	S	57.4	.51	14.1	N	S-Q	64.2	3	64.2	3-3/4	M	115	90 OI	212	S
II-55-16	58.0	31.3	32	66	2	74.5	2.05	15.6	S	54.8	.53	14.3	N-S	Q	63.8	3	63.8	3	M	100	95 SII	195	S	
II-56-40	55.0	28.1	15	81	4	73.6	2.12	14.1	Q	57.4	.55	13.2	N	Q	61.6	8	61.6	7-3/4	M-S	100 SLC	95 SII	218	Q	
II-59-91	56.0	26.5	23	74	3	74.0	2.02	15.0	S	56.9	.54	13.8	N	Q	64.2	5	64.2	4-1/2	M	100 SLC	95	210	S	
B61-89	13946	58.0	30.3	42	55	3	75.0	2.05	15.1	S	56.2	.60	13.9	N	U	63.8	4	63.8	4	M	105 SLC	95 SII	208	S
61-107	13937	57.0	31.5	34	63	3	74.6	1.98	15.3	S	58.2	.55	14.6	N	S-Q	62.5	3	62.5	3-1/4	M	100 SLC	100	200	S-Q
62-85	59.0	30.8	29	69	2	74.4	2.09	15.7	S	63.0	.54	15.2	N	S	63.2	5	63.2	4-1/4	M-S	100	95 SII	229	S	
ND 363	13828	58.0	28.3	35	61	4	74.6	2.08	16.3	S	59.0	.53	14.8	N	S	61.9	3	61.9	3-1/2	M	100 C	90	201	Q
ND 407	13953	61.0	33.4	56	43	1	75.8	2.09	16.0	VS	56.2	.50	14.8	N	Q	63.5	4	63.5	3-3/4	M-S	100 SLC	80 O	208	Q
ND 456	13956	60.0	30.7	34	64	2	74.6	2.08	15.5	S	61.0	.44	14.3	N	VS	61.3	3	61.3	2-3/4	M	105	80 OI	192	Q-U
ND 457	13957	59.0	30.4	52	46	2	75.5	1.96	16.1	VS	60.8	.47	14.7	N	VS	61.9	3	61.9	3	M	100	95 SII	193	Q
ND 477	59.0	27.9	23	73	4	74.0	2.01	15.7	S	59.0	.46	14.5	N	S	61.6	3	60.6	2-1/2	M	105	90 OI	187	Q	
SD 625	13948	56.0	26.3	4	90	6	72.9	1.96	15.0	S-Q	59.5	.52	14.5	N	S	64.2	4	64.2	3-1/4	M	110 C	100	187	S
SD 626	13949	56.0	30.3	29	68	3	74.3	1.95	15.4	S	56.9	.51	14.1	N	Q	61.9	3	61.9	3	M	100	95 SIO	204	Q
Wisc. 261		57.0	26.5	13	81	6	73.4	1.86	14.6	S	60.0	.44	13.7	N	VS	63.2	7	63.2	7	M-S	95	90 O	193	S
Wisc. 262		56.0	28.9	29	68	3	74.3	1.97	15.0	S	59.3	.45	14.1	N-S	S	64.2	7	64.2	6	M-S	105	90 OI	211	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 21

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Laramie, Wyoming

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #Bu.	1000 Kwt.	Kernel Lg. Med. Sm.	Pot. Yld.	Wht. Min.	Wht. Pro.	Wht. Kern.	Flr. Ext.	Flr. Min.	Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
			g.	%	%	%	%	%	%	%	%	%	%	%	%	%	min.	6/ 6/	1/ 1/	g/ g/	cc.	
Chris	13751	60.5	30.0	39	59	2	74.8	1.46	1.44	14.8	14.8	S	S	65.0	3	65.0	2-1/4	M	110	100	181	S
Justin	13462	61.0	34.0	59	38	3	75.8	1.56	1.50	15.1	15.1	S	S	69.7	5	69.7	3	M	100	100	185	S
Manitou	13775	60.5	30.1	41	57	2	75.0	1.46	1.46	15.3	15.3	S	S	63.8	2	63.8	2-1/4	M	95	90	190	Q
Marquis	3641	61.0	32.2	49	49	2	75.4	1.42	1.42	14.9	14.9	S	S	64.4	3	64.4	2-3/4	M	105	95	194	S-Q
Selkirk	13100	60.0	35.8	57	37	6	75.6	1.46	1.46	14.7	14.7	S	S	62.7	2	62.7	2-1/4	M-W	95	100	171	Q
Thatcher	10003	60.5	29.9	41	56	3	74.9	1.44	1.44	14.8	14.8	S	S	64.2	2	64.2	2	M	110	90	194	Q
II-55-11	13773	60.5	36.4	61	36	3	75.9	1.50	1.46	14.7	14.7	S	S	66.3	4	66.3	3	M	80	95	198	S
II-55-16	62.0	36.6	59	37	4	75.8	1.46	1.44	14.4	14.4	13.6	N	S	67.9	5	67.9	3-1/4	M	62/	95	190	S
II-56-40	61.0	35.6	49	49	2	75.4	1.45	1.45	14.5	14.5	14.0	N	VS	66.0	5	66.0	5	M-S	90	95	203	S
II-59-91	60.5	32.3	45	53	2	75.2	1.46	1.46	14.8	14.8	14.0	N	Q	65.3	4	65.3	3-3/4	M	100	95	190	S
B61-89	13946	61.5	40.2	77	22	1	76.8	1.56	1.38	14.9	14.9	VS	U	67.0	4	67.0	3	M	100	95	188	S
61-107	13937	61.0	42.7	77	21	2	76.8	1.38	1.40	14.0	14.0	VS	U-Q	62.8	2	62.8	1-3/4	W SID	80	80	159	U
62-85	63.5	36.1	57	41	2	75.8	1.41	1.41	14.8	14.8	14.5	N	Q	67.0	5	67.0	4	M-S	110	95	190	S
ND 363	13828	62.0	35.8	67	31	2	76.3	1.55	1.48	14.8	14.8	S	S	65.7	3	65.7	2-1/2	M	100	95	194	S
ND 407	13953	61.0	35.1	54	45	1	75.7	1.45	1.45	15.5	15.5	S	S	69.4	6	69.4	3-1/2	M-S	90	95	207	S
ND 456	13956	61.5	37.9	63	35	2	76.1	1.51	1.51	14.3	14.3	S	VS	65.3	4	65.3	3	M	90	90	202	S
ND 457	13957	61.5	32.9	56	41	3	75.7	1.53	1.45	14.5	14.5	S	Q	66.0	4	66.0	3-1/4	M	95	95	182	S
ND 477	62.0	34.4	48	50	2	75.3	1.55	1.43	14.3	14.3	13.5	N	S	66.6	4	66.6	2-1/2	M	100	95	190	S
SD 625	13948	61.5	34.0	30	67	3	76.4	1.53	1.46	14.6	14.6	S	S-Q	67.6	3	67.6	2-1/2	M	100	95	168	S
SD 626	13949	60.5	34.6	55	43	2	75.7	1.40	1.40	14.0	14.0	S	S-Q	64.7	3	64.7	2-1/4	M	95	95	198	Q
Wisc. 261	61.5	34.1	55	42	3	75.6	1.46	1.46	13.1	13.1	12.4	N	S	65.3	3	65.3	2-3/4	M	95	95	189	S-Q
Wisc. 262	61.0	35.7	59	39	2	75.9	1.49	1.49	14.0	14.0	13.2	N	S	66.3	4	66.3	3-1/2	M	100	95	211	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

9/ Ergot in sample.

TABLE 22

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Sheridan, Wyoming

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min. 2/ %	Wht. Pro. 2/ %	Kern. Char. 3/ %	Flr. Ext.	Min.@ 65%Ex. 2/ %	Flr. Pro. 2/ %	Mlg. Char. Per. 4/ %	Mlg. Char. Per. 3/ %	Mix. Abs. 2/ %	Mix. Pat. 5/ %	Bake Abs. 2/ %	Mix. Time	Dough Char. 6/ %	Crumb Color 7/ %	Crumb Grain 8/ %	Loaf Vol. 3/ cc.	Bake Eval.	
				Ig.	Med. Sm.																			%
Chris	13751	56.0	17.7	0	67	33	71.4	1.85	19.1	S	60.7	.55	18.1	N	S	70.3	6	70.3	4-1/4	M-S	100 C	80 OI	232	S-Q
	13462	56.0	22.2	1	82	17	72.2	1.76	19.0	S	61.5	.50	18.2	N	S	70.9	7	70.9	4	M-S	95 C	90 OI	212	S
	13775	53.0	17.6	0	63	37	71.2	1.90	19.7	Q	57.8	.61	18.8	N	U	70.3	6	70.3	3-1/4	M-S	95 C	90 O	204	S-Q
	3641	58.0	21.6	0	83	17	72.2	1.65	17.4	S	59.5	.50	16.3	N	S	67.2	5	67.0	3-1/4	M	105	95	211	Q-S
	13100	54.0	21.9	0	75	25	71.8	1.76	17.7	S	61.8	.54	17.2	N	S	67.3	5	67.3	3-1/2	M	95	95	195	S-Q
Thatcher	10003	56.0	18.9	2	75	23	72.0	1.78	18.6	S	58.8	.57	17.7	N	Q	66.6	4	66.6	2-3/4	M	95	95 SII	209	U
	13773	59.0	26.7	1	85	14	72.2	1.73	17.1	S	63.2	.47	16.5	N	VS	67.0	5	67.0	3-1/4	M	90	95	216	Q
	II-55-16	59.0	26.0	1	86	13	72.4	1.62	17.3	S	62.9	.49	16.6	N	S	69.1	6	69.1	4-1/4	M-S	90	90	222	S
	II-56-40	57.0	23.4	2	83	15	72.2	1.49	17.4	S	64.3	.44	17.0	N	VS	65.7	8	65.7	7-3/4	M-S	95	90 IO	240	S-Q
	II-59-91	57.5	21.1	1	82	17	72.2	1.61	18.4	S	58.4	.55	17.5	N	Q	67.0	5	67.0	4	M-S	85	100	210	Q
B61-89	13946	57.5	27.2	5	87	8	72.9	1.75	17.4	S	58.4	.56	16.5	N	U	69.7	7	69.7	5-3/4	M-S	105 SLC	95	187	S-Q
	61-107	57.0	29.0	1	90	9	72.6	1.68	17.6	S	60.3	.50	17.1	N	S	66.6	4	66.6	3	M-S	100	95 SII	215	U
	62-85	59.0	22.9	0	89	11	72.5	1.70	18.6	S	57.7	.54	18.1	N	Q	70.0	7	70.0	4	M-S	100 W	90 O	225	S
	ND 363	56.5	21.5	2	83	15	72.4	1.70	19.6	S	57.5	.57	18.6	N	Q-U	70.3	7	70.3	5-1/2	M-S	95 SLC	90 I	229	S
	ND 407	13953	58.5	24.6	3	87	10	72.7	1.74	18.5	S	57.6	.52	17.9	N	Q	70.0	7	70.0	5-1/4	M-S	80	90 O	238
ND 456	13956	59.0	24.0	2	85	13	72.5	1.71	18.2	S	62.9	.45	17.0	N	VS	67.6	5	67.6	3-1/2	M	95	90	217	Q
	13957	57.0	21.7	1	81	18	72.2	1.72	18.4	S	62.7	.53	17.4	N	S	67.9	5	67.9	3-3/4	M	95	95 SIO	203	Q
	ND 477	57.5	21.0	2	78	20	72.1	1.70	19.0	S	59.1	.55	17.7	N	Q	67.6	5	66.6	3	M-W	80	95	185	U
	13948	59.0	23.8	0	85	15	72.3	1.67	16.7	S	61.4	.50	16.0	N	S	67.6	4	67.6	3	M	85	95	188	U
	SD 626	13949	56.0	22.1	2	77	21	72.1	1.77	17.4	S	57.1	.58	16.7	N	Q	67.0	4	67.0	3	M	100	95	190
Misc. 261	57.0	20.1	0	63	37	71.2	1.65	17.9	S	60.6	.52	17.1	N	S	69.7	7	69.7	6-1/2	M	95 SLC	90 I	202	S	
	57.5	21.1	0	73	27	71.7	1.64	18.7	S	59.2	.53	17.8	N	S	70.9	7	70.9	4-1/4	M-S	95 SLC	95	222	S	

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 23

AVERAGE OF QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size Lg. Med. Sm.	Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Fir. Ext.	Fir. Min.	Fir. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.	Gen. Eval.
				%	%	%	%	%	%	%	%	%	%	%	%	%	min.	%	g/	g/	cc.	3/	3/
Chris	13751	59.7	25.5	15	77	8	73.4	1.79	16.6	S	61.0	.50	15.9	N	S	70.7	3-1/2	M	90	95 SII	1050	S	S
Justin	13462	59.0	31.0	30	65	5	74.3	1.91	17.3	S	60.0	.47	16.6	N	S	70.9	4	M-S	95	100	1050	S	S
Manitou	13775	58.7	27.1	12	79	9	73.2	1.83	16.7	S	60.5	.50	15.9	N	S	70.0	3	M	90	95	1125	S-Q	S-Q
Marquis	3641	58.8	13	78	9	73.2	1.87	15.6	S	58.8	.50	14.9	N	Q	S	70.0	4	M-S	90	100	1030	S	S-Q
Selkirk	13100	56.7	28.4	19	71	10	73.5	1.87	15.9	S-Q	61.2	.51	15.3	N	S	69.1	3-3/4	M	95 S1C	100	1005	S-Q	S-Q
Thatcher	10003	58.0	23.7	7	84	9	72.8	1.82	16.0	Q	60.1	.52	15.3	N	S-Q	66.3	3	M	100	95 SII	1075	Q-S	Q-S
II-55-11	13773	61.2	32.9	36	59	5	74.6	1.84	15.9	S	60.5	.46	15.2	N	S	70.3	4-1/4	M-S	105	95 S10	1125	S-Q	S
II-55-16	61.3	34.3	41	54	5	74.8	1.74	15.6	S	59.9	.46	14.8	N	S	S	70.5	4-1/2	M-S	100	95 SII	1035	S	S
II-56-40	59.1	30.0	23	71	6	73.8	1.78	15.2	S	61.2	.45	14.6	N	VS	S	67.9	7-3/4	S	110	90 I	1010	S	S-Q
II-59-91	58.6	26.7	20	73	7	73.7	1.80	16.1	S	58.9	.50	15.3	N	Q	S	70.3	5-1/4	S	100	95	1050	S	S-Q
B61-89	13946	59.1	32.6	43	53	4	75.0	1.85	16.0	S	57.5	.53	15.1	N-S	U	70.3	4-1/4	M-S	105	90 O	1025	S	Q-U
61-107	13937	59.3	34.2	45	50	5	74.9	1.70	15.8	S	58.3	.50	15.2	N	Q	66.6	2-3/4	M-W	105	100	1000	U	U-Q
62-85	61.3	30.6	31	65	4	74.4	1.82	16.4	S	58.8	.50	15.8	N	Q	S	69.7	3-3/4	M-S	120 BW	100	1100	S	S-Q
ND 363	13828	57.2	29.4	34	60	6	74.4	1.86	16.6	S	60.0	.50	15.6	N	S-Q	69.7	4-1/4	M-S	105	100	1150	S	S-Q
ND 407	13953	59.0	33.2	39	57	4	74.7	1.84	16.9	S	56.8	.47	16.1	N-S	Q-U	70.3	4	M-S	110 W	90 OI	1100	S	U-Q
ND 456	13956	60.3	30.5	33	62	5	74.5	1.83	16.1	S	61.1	.44	15.1	N	VS	69.7	3-3/4	M-S	110 S1C	95	1050	S	Q
ND 457	13957	59.8	28.3	31	63	6	74.2	1.87	16.5	S	61.8	.46	15.6	N	S	69.4	3-3/4	S-M	100	95	990	S-Q	S-Q
ND 477	60.2	28.1	19	75	6	73.7	1.82	16.1	S	59.9	.47	15.1	N	S	S	69.7	3-1/4	M	105	95	1020	S-Q	S-Q
SD 625	13948	60.4	28.3	8	85	7	73.1	1.80	15.8	S	61.2	.48	15.1	N	S	68.8	2-1/2	M-W	105 S1C	95 SII	920	U	U
SD 626	13949	58.5	29.4	25	68	7	73.8	1.78	15.6	S	59.5	.50	14.6	N	S-Q	64.7	2-1/2	M	100	90	1065	U	U
Wisc. 261	59.2	27.1	11	76	13	72.9	1.75	15.6	S	61.7	.45	14.8	N	S	S	65.0	4-3/4	M-S	100	90 I	1015	S-Q	S-Q
Wisc. 262	58.6	28.0	20	72	8	73.6	1.78	15.8	S	60.6	.44	15.1	N	S	S	68.8	6	S-M	110	95 S10	1150	S	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 24

QUALITY DATA ON UNIFORM REGIONAL NURSERY STATE AVERAGES

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/ #/Bu.	1000 Kwt.	Kernel Size	Pot. Yld.	Wht. Min. 2/ %	Wht. Pro. 2/ %	Flr. Ext. 2/ %	Flr. Min.@ 65% Ex. 2/ %	Mix. Abs. 2/ %	Mix. Pat. 3/ %	Bake Abs. 2/ %	Mix. Time	Dough Char. 4/ %	Crumb Color	Crumb Grain	Leaf Vol.	
																		cc.
MINNESOTA STATIONS																		
Chris	13751	60.6	27.8	26	71	3	74.1	1.89	15.6	58.9	.48	15.0	63.0	4	63.0	3-1/4	M	196
Justin	13462	59.0	30.4	37	59	4	74.7	2.06	17.2	57.3	.49	16.5	66.5	5	66.5	3-3/4	M-S	207
Selkirk	13100	57.4	28.9	19	76	5	73.7	1.95	15.3	59.2	.57	14.6	63.5	4	63.3	4	M	176
MONTANA STATIONS																		
Chris	13751	60.2	25.1	3	90	7	72.8	1.61	16.5	62.8	.50	16.0	65.1	4	65.1	3-1/4	M	195
Justin	13462	60.0	29.2	23	73	4	74.0	1.62	16.8	62.5	.42	16.2	68.3	6	68.1	4-1/4	M	184
Selkirk	13100	58.8	28.4	16	80	4	73.6	1.62	15.9	62.7	.43	15.1	64.4	4	64.4	3-1/2	M	188
NORTH DAKOTA STATIONS																		
Chris	13751	60.9	27.2	18	79	3	73.8	1.74	16.8	61.7	.46	16.1	67.0	5	67.0	3-3/4	M-S	199
Justin	13462	59.8	31.0	43	54	3	75.1	1.94	17.6	60.5	.46	17.0	69.7	6	69.7	5	M-S	190
Selkirk	13100	57.6	32.5	27	69	4	74.2	1.88	16.5	61.9	.46	16.0	64.3	4	64.3	3-3/4	M	176
SOUTH DAKOTA STATIONS																		
Chris	13751	57.0	19.2	1	77	22	72.1	1.94	17.8	60.4	.60	17.1	69.7	7	69.2	5	M	179
Justin	13462	56.5	22.7	2	85	13	72.5	2.13	17.9	60.5	.54	17.0	68.7	6	68.7	4	M	197
Selkirk	13100	51.0	20.1	1	68	31	71.5	2.15	17.0	61.3	.61	16.2	64.9	4	64.9	3-1/2	M	176
WISCONSIN STATION																		
Chris	13751	58.0	26.4	9	88	3	73.3	2.11	16.7	59.3	.56	15.9	64.2	3	64.2	2-1/2	M	190
Justin	13462	59.0	31.2	40	58	2	74.9	2.17	17.2	56.7	.49	16.5	66.6	5	66.6	3-3/4	M	194
Selkirk	13100	55.0	27.2	15	81	4	73.6	2.13	14.4	59.3	.53	13.7	61.9	3	61.9	3-1/4	M	175
WYOMING STATIONS																		
Chris	13751	58.3	23.9	20	63	17	73.1	1.66	17.1	62.3	.48	16.4	67.7	5	67.7	3-1/4	M	206
Justin	13462	58.5	28.1	30	60	10	74.0	1.66	17.1	61.6	.46	16.5	70.3	6	70.3	3-1/2	M	199
Selkirk	13100	57.0	28.9	29	56	15	73.7	1.61	16.2	62.5	.48	15.6	65.3	4	65.0	2-3/4	M	183
STATE AVERAGES OF THE THREE VARIETIES																		
Minnesota		59.0	29.0	27	69	4	74.2	1.97	16.0	58.5	.51	15.4	64.3	4	64.3	3-3/4	M	193
Montana		59.7	27.6	14	81	5	73.5	1.62	16.4	62.7	.45	15.8	65.9	5	65.9	3-3/4	M	189
North Dakota		59.4	30.2	29	67	4	74.4	1.85	17.0	61.4	.46	16.4	67.0	5	67.0	4-1/4	M	188
South Dakota		54.8	20.7	1	77	22	72.0	2.08	17.6	60.7	.58	16.8	67.8	6	67.6	4-1/4	M	184
Wisconsin		57.3	28.3	21	76	3	73.9	2.13	16.1	58.4	.53	15.4	64.2	4	64.2	3-1/4	M	186
Wyoming		57.9	27.0	26	60	14	73.6	1.64	16.8	62.1	.47	16.2	67.8	5	67.7	3-1/4	M	196
1966 Average ^{5/}		58.0	27.1	20	72	8	73.6	1.88	16.6	60.6	.50	16.0	66.2	5	66.1	3-3/4	M	189
1965 Average ^{5/}		60.2	29.5	26	71	3	74.2	1.74	15.4	61.8	.47	14.9	64.2	4	63.1	3-1/4	M	175

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ Refer to reference mixogram for numerical curve pattern.

4/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead.

5/ Averages obtained by using data for Minnesota, Montana, North Dakota, South Dakota, Wisconsin, and Wyoming.

TABLE 25

QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

Dutton, Montana

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size Lg. Med. Sm.	Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Flr. Min. @ 65% Ex.	Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.		
			g.	%	%	%	%	%	%	%	%	%	%	%	%	%	min.	%	g/	g/	cc.			
Chinook	13320	59.0	30.3	21	71	8	73.7	1.84	13.8	S	58.9	.42	13.6	N	S	61.9	3	61.9	2-3/4	M	120	100	185	S
Cypress	13344	60.0	27.9	10	84	6	73.2	1.76	14.1	S	57.1	.42	13.8	N	S-Q	65.3	4	65.3	3-1/2	M	110	95	190	S
Fortuna	13596	58.5	33.4	32	62	6	74.3	1.75	12.9	VS	58.4	.45	12.3	N	S	62.8	3	62.8	3	W-M	115 BC	100	178	S-Q
Rescue	12435	58.5	26.5	9	85	6	73.2	1.89	13.4	S	58.9	.46	12.6	N	S	60.3	2	60.3	2-3/4	M	115 BC	100	196	S
Sawtana	13304	59.5	26.6	5	88	7	72.9	1.87	13.0	S	61.6	.46	12.5	N	S	62.3	3	62.3	3-1/4	M-W	115 BC	95	192	Q
Thatcher	10003	57.0	25.6	6	84	10	72.8	1.86	14.4	S	59.5	.48	13.9	N	S	63.8	3	63.8	3	M-S	105	100	222	S
B61-23	13832	58.0	29.1	16	78	6	73.5	1.97	14.1	S	56.0	.49	13.6	N-S	Q	65.0	4	65.0	3-1/2	M-S	110 BC	95	210	S
ND 61-107	13937	56.5	32.2	34	59	7	74.4	1.82	14.5	VS	57.6	.48	14.4	N	S-Q	64.2	3	64.2	2-3/4	W-M	115 BC	95	216	U-Q
ND 62-85		61.0	31.1	22	74	4	73.9	1.87	14.3	S	58.3	.45	14.2	N	S	66.0	5	66.0	4-1/2	M	105 W	95	215	S
ND 63-81		58.0	29.8	16	78	6	73.5	1.90	13.3	S	56.9	.45	12.7	N	S-Q	64.4	5	64.4	4	M	110	95	192	S
ND 63-114		56.0	31.0	30	64	6	74.2	1.92	14.7	S	56.2	.49	14.5	N	Q	64.7	3	64.7	2-1/2	M	110	95	210	S
Q631-4		59.0	30.6	40	54	6	74.7	1.83	12.6	VS	57.4	.50	11.9	N	Q	64.4	4	64.4	4-1/4	M	125 BC	105	191	S
Q631-11		59.0	31.0	37	58	5	74.6	1.76	12.9	S	58.3	.49	12.3	N	S-Q	65.0	5	65.0	5-1/4	M	120 BC	100	178	S-Q
Q631-16		59.0	32.2	43	52	5	74.9	1.79	13.2	VS	56.9	.48	12.3	N	S-Q	65.0	4	65.0	4-1/2	M	120 BC	100	178	S
7530-436		59.5	28.7	35	61	4	74.6	1.88	15.3	S	58.8	.44	14.9	N	S	66.0	4	66.0	3-1/2	M-S	110	90	180	S
7532-2		59.5	25.8	13	81	6	73.4	2.01	14.4	S	59.5	.43	14.0	N	S	64.4	3	64.4	3	M	115	95	191	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 26

QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

Havre, Montana

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel Size Lg. Med. Sm.	Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min. @ 65% Ex.	Flr. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.	
			g.	%	%	%	%	%	%	%	%	%	%	%	%	%	min.	g/	l/	g/	cc.		
Chinook	13320	62.5	32.8	34	64	2	74.6	1.66	16.7	S	60.8	.44	16.4	N	VS	67.3	4	67.3	3	M-S	110	95	195 S
Cypress	13344	62.5	31.0	15	84	1	73.7	1.56	16.4	S	59.3	.41	16.1	N	VS	69.1	6	69.1	5-1/4	S-M	105	100	217 S
Fortuna	13596	62.5	37.9	53	46	1	75.6	1.67	16.0	VS	60.0	.44	15.5	N	S	66.6	4	66.6	3-1/4	M-S	110	90	220 S
Rescue	12435	62.5	30.4	7	91	2	73.3	1.45	15.3	S	60.8	.40	14.8	N	VS	66.0	5	66.0	5-1/2	S-M	105 C	95	203 S
Sawtana	13304	63.0	30.4	7	91	2	73.3	1.57	15.5	S	60.8	.47	15.0	N	S	65.3	4	65.3	3-3/4	M-S	105	95	218 S
Thatcher	10003	62.0	30.3	15	84	1	73.7	1.52	15.8	S	59.8	.50	15.1	N	S	64.2	4	64.2	2-3/4	M-S	100	95	209 S-Q
B61-23	13832	62.0	34.7	31	68	1	74.5	1.67	17.2	S	56.9	.53	17.1	N	Q	68.5	5	68.5	3-1/4	M-S	105	80	239 S-Q
ND 61-107	13937	62.0	38.5	62	37	1	76.1	1.59	16.7	VS	58.4	.55	16.5	N	U-Q	65.3	3	65.3	2-1/4	M	120 BC	80	216 Q-U
ND 62-85	62.5	33.7	36	62	2	74.7	1.63	16.6	S	57.4	.54	16.0	N	U-Q	68.2	6	68.2	4-1/2	S	110	90	226 S	
ND 63-81	62.0	35.0	31	68	1	74.5	1.51	15.6	S	57.9	.41	15.0	N	Q-S	66.3	5	66.3	4	S-M	100	95	236 S	
ND 63-114	61.5	38.0	63	36	1	76.1	1.70	17.6	VS	54.3	.55	17.5	N-S	U	67.0	3	67.0	2-1/4	M-W	100 C	80	212 U	
Q631-4	62.0	35.7	52	47	1	75.6	1.53	16.2	VS	56.7	.47	15.9	N	Q	69.7	7	69.7	6-1/4	S-M	110	95	222 S	
Q631-11	62.0	36.6	64	35	1	76.2	1.59	17.0	VS	56.0	.51	16.3	N	Q-U	69.1	6	69.1	4-1/2	M-S	110	90	240 S	
Q631-16	62.5	34.7	57	41	2	75.8	1.54	16.6	VS	56.7	.50	15.9	N	Q	67.0	6	67.0	4-3/4	S-M	105	95	225 S	
7530-436	63.0	30.1	24	75	1	74.2	1.74	17.9	S	56.9	.56	17.2	N	U	66.0	4	66.0	2-1/2	M-S	100	90	215 Q	
7532-2	63.0	30.3	5	93	2	73.2	1.59	16.6	S	60.8	.43	16.1	N	S	64.7	4	64.7	2-1/2	M-S	105	90	222 Q	

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

TABLE 27

QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

Sidney, Montana

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000			Wht. 2/ %	Wht. Pro. 2/ %	Kern. Char. 3/ %	Flr. Ext. 2/ %	Flr. Min. @ 65% Ex. 2/ %	Mlg. Char. Per. 4/ %	Mlg. Per. 3/ %	Mix. Abs. 2/ %	Mix. Pat. 5/ %	Bake Abs. 2/ %	Mix. Time min.	Dough Char. 6/ %	Crumb Color 7/ %	Crumb Grain 8/ g	Leaf Vol. 9/ cc.	Bake Eval. 3/ %
			g.	%	%																
Chinook	13320	59.0	24.4	1	93	6	72.8	1.55	16.6	58.5	.41	16.2	N	S	64.7	4	S-M	115 BC	90 SII	181	S
Cypress	13344	60.0	23.1	1	90	9	72.6	1.53	17.2	57.3	.45	16.7	N	S	66.3	7	S	100 C	90	198	S
Fortuna	13596	59.9	28.0	5	90	5	73.0	1.51	15.7	58.5	.43	15.2	N	S	63.8	5	M	110 C	100	185	S
Rescue	12435	57.9	19.3	0	82	18	72.1	1.58	16.9	58.0	.46	16.4	N	S	66.3	7	S	115 BC	90 SIO	206	S
Sawtana	13304	58.9	19.4	0	79	21	72.0	1.84	17.4	61.1	.50	16.9	N	S-Q	69.1	6	S	115 BC	95	192	S
Thatcher	10003	58.9	20.7	0	88	12	72.4	1.56	17.0	58.9	.45	16.4	N	S	65.3	4	M-S	115 BC	80 O	195	S
B61-23	13832	59.9	27.6	1	96	3	72.9	1.55	17.0	56.4	.48	16.8	N-S	Q	67.9	5	S-M	110	90 I	206	S
ND 61-107	13937	58.9	29.1	6	90	4	73.1	1.40	16.9	58.3	.45	16.6	N	S	66.3	4	M-S	115 BC	90	198	S-Q
ND 62-85		61.0	26.4	4	94	2	73.1	1.54	16.9	59.4	.55	16.8	N	U	67.6	6	S-M	100	90 O	210	S
ND 63-81		57.5	24.0	2	87	11	72.6	1.49	16.7	58.0	.43	16.5	N	S	67.0	7	S-M	110 BC	95	211	S
ND 63-114		58.5	30.5	12	85	3	73.5	1.44	16.9	58.0	.46	16.4	N	S	66.3	4	M	110 SLC	95	189	S-Q
Q631-4		59.0	20.1	1	82	17	72.2	1.61	17.3	61.2	.44	16.9	N	S	65.7	4	M	110 C	90	182	S-Q
Q631-11		61.0	25.8	4	93	3	73.1	1.52	16.7	58.0	.44	16.0	N	S	65.7	4	M-S	110 SLC	90 I	177	S
Q631-16		58.0	23.8	0	92	8	72.6	1.59	17.4	58.0	.49	16.6	N	S	67.9	8	S-M	110 SLC	90 I	191	S
7530-436		58.0	24.6	1	91	8	72.7	1.53	17.1	58.5	.50	16.4	N	Q	67.9	8	S-M	110 SLC	100	195	S
7532-2		58.0	24.3	1	91	8	72.7	1.58	17.1	57.7	.57	16.5	N	U	67.9	8	S-M	110 SLC	90	198	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 28

QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

Williston, North Dakota

1966 CROP

Variety or Sel. No.	C. I. No.	T. W. 1/ #/Bu.	1000 Kwt.	Kernel Size		Pot. Yld.	Wht. Min. 2/ %	Wht. Pro. 2/ %	Kern. Char. 3/ %	Flr. Ext.	Flr. Min. @ 65% Ex.	Mlg. Char. 4/ %	Mlg. Per.	Mix. Abs. 2/ %	Mix. Pat.	Bake Abs. 2/ %	Mix. Time	Dough Char. 6/ %	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.
				Leg.	Med. Sm.																	
Chinook	13320	61.0	30.0	3	93	4	73.0	1.82	16.9	S	59.9	.48	16.2	N	S	64.2	3	S-M	110 SLC	100	190	S
Cypress	13344	61.0	26.7	3	94	3	73.0	1.81	16.9	S	59.7	.45	16.4	N	S	65.0	3-3/4	S-M	105 SLC	80 I	194	S
Fortuna	13596	60.0	34.2	30	68	2	74.4	1.78	17.1	VS	59.6	.53	16.6	N	Q	64.7	3	M-S	115 BC	90	202	S
Rescue	12435	60.0	26.4	2	95	3	73.0	1.84	16.4	S	56.9	.50	15.8	N	S	64.2	4	S	110 SLC	90	203	S
Sawtana	13304	61.0	26.0	4	90	6	72.9	1.90	16.1	S	60.1	.50	15.4	N	S	63.8	3-1/2	M-S	110 SLC	80 O	202	S
Thatcher	10003	59.0	24.6	3	90	7	72.8	1.80	16.9	S	59.1	.50	15.7	N	S	62.5	3	S	100 SLC	80 O	201	S
B61-23	13832	60.0	30.3	12	86	2	73.5	1.86	16.9	VS	57.3	.49	16.7	N	S	66.3	3-1/2	M-S	105 SLC	80 O	209	S
ND 61-107	13937	60.0	34.4	29	68	3	74.3	1.62	17.1	VS	57.9	.49	16.8	N	S	64.2	2-1/2	M	110 SLC	80 O	196	Q
ND 62-85	62.0	31.1	21	77	2	74.0	1.86	16.5	VS	56.0	.53	16.3	N	Q	S	65.3	4	S-M	110	80 I	208	S
ND 63-81	59.0	30.8	10	87	3	73.4	1.67	16.3	S	56.8	.44	15.8	N	S	S	64.7	4-1/4	M-S	105	90 SII	221	S
ND 63-114	59.0	36.0	48	50	2	75.3	1.74	17.8	VS	54.6	.57	17.2	N-S	Q	3	65.0	2-1/2	M-W	110 BC	80 O	190	U
Q631-4	59.0	27.9	4	92	4	73.0	1.78	17.0	S	57.6	.52	16.2	N	Q	6	66.3	6-1/2	S-M	110 BC	95	200	S
Q631-11	60.0	28.0	11	85	4	73.4	1.70	16.6	S	56.8	.50	16.0	N	S	6	66.3	6-1/4	M-S	110 BC	90	190	S
Q631-16	59.0	26.7	9	87	4	73.3	1.69	16.5	S	57.8	.51	16.0	N	S-Q	6	65.7	6-1/4	S	110 BC	95	206	S
7530-436	62.0	27.2	9	88	3	73.3	1.80	17.3	S	55.6	.52	16.7	N	S	4	63.5	3-1/4	M-S	120 BC	95	177	S
7532-2	60.0	24.3	2	91	7	72.8	1.93	16.7	S	57.9	.49	15.9	N	S	3	62.5	2-3/4	M-S	110 BC	90	196	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 29

QUALITY DATA ON SAWFLY YIELD AVERAGES

Dutton, Havre, and Sidney, Montana
Williston, North Dakota

1966 CROP

Variety or Sel. No.	C.I. No.	T.W. #/Bu.	1000 Kwt.	Kernel		Pot. Yld.	Wht. Min.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min. @ 65% Ex. Pro.	Mlg. Char.	Mlg. Per.	Mix. Abs.	Mix. Pat.	Bake Abs.	Mix. Time	Dough Char.	Crumb Color	Crumb Grain	Loaf Vol.	Bake Eval.	Gen. Eval.		
				Size	Med.																			g.	%
Chinook	13320	60.4	29.4	15	80	5	73.5	1.72	16.0	S	59.5	.44	15.6	N	S	64.5	4	64.5	3-1/4	S-M	114	96	188	S	S
Cypress	13344	60.9	27.2	7	88	5	73.1	1.67	16.2	S	58.4	.43	15.8	N	S	66.4	6	66.4	4-3/4	S-M	105	91	200	S	S
Fortuna	13596	60.2	33.4	30	67	3	74.3	1.68	15.4	VS	59.1	.46	14.9	N	S	64.5	4	64.5	3-1/2	M	113	95	196	S	S
Rescue	12435	59.7	25.7	5	88	7	72.9	1.69	15.5	S	58.7	.46	14.9	N	S	64.2	5	64.2	5	S-M	111	94	202	S	S
Sawtana	13304	60.6	25.6	4	87	9	72.8	1.80	15.5	S	60.9	.48	15.0	N	S	65.1	4	65.1	4	M-S	111	91	201	S	S
Thatcher	10003	59.2	25.3	6	87	7	72.9	1.69	16.0	S	59.3	.48	15.3	N	S	64.0	4	64.0	3	M-S	105	89	207	S	S-Q
B61-23	13832	60.0	30.4	15	82	3	73.6	1.76	16.3	S	56.7	.50	16.1	N-S	Q	66.9	5	66.9	3-3/4	M-S	108	86	216	S	S-Q
ND 61-107	13937	59.4	33.6	33	64	3	74.5	1.61	16.3	VS	58.1	.49	16.1	N	S-Q	65.0	3	65.0	2-3/4	M	115	86	207	Q	Q
ND 62-85	61.6	30.6	21	77	2	74.0	1.73	16.1	S	57.8	.52	15.8	N	U-S	S	66.8	6	66.8	4-3/4	S-M	106	89	215	S	Q-S
ND 63-81	59.1	29.9	15	80	5	73.5	1.64	15.5	S	57.4	.43	15.0	N	S-Q	Q	65.6	6	65.6	4-1/2	S-M	106	94	215	S	S-Q
ND 63-114	58.8	33.9	38	59	3	74.8	1.70	16.8	VS	55.8	.52	16.4	N-S	Q	Q	65.8	3	65.8	2-1/2	M-W	108	88	200	U	U
Q631-4	59.8	28.6	24	69	7	73.9	1.69	15.8	VS	58.2	.48	15.2	N	Q	S	66.5	5	66.5	5	S-M	114	96	199	S	S-Q
Q631-11	60.5	30.4	29	68	3	74.3	1.64	15.8	S	57.3	.49	15.2	N	S-Q	S	66.5	6	66.5	5	M-S	113	93	196	S	S-Q
Q631-16	59.6	29.4	27	68	5	74.2	1.65	15.9	VS	57.4	.50	15.2	N	S-Q	S	66.4	6	66.4	6	S-M	111	95	200	S	S-Q
7530-436	60.6	27.7	17	79	4	73.7	1.74	16.9	S	57.5	.51	16.3	N	U-S	U-S	65.9	5	65.9	4-1/2	M-S	110	94	192	S	Q
7532-2	60.1	26.2	5	89	6	73.0	1.78	16.2	S	59.0	.48	15.6	N	S-Q	S	64.9	5	64.9	4-1/4	M-S	110	91	202	S	Q-S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

